ELECTRONIC COMPONENT MARKET OPPORTUNITIES FOR U.S. SMALL AND MEDIUM-SIZED ENTERPRISES

ExportIT Brazil

U.S. DEPARTMENT OF COMMERCE
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PREFACE

This report describes and analyzes trends, key issues, and events in Brazil's electronic components sector, to assist U.S. small- and medium-sized enterprises (SMEs) in making educated business decisions about entering that market. The report examines the consumer electronics, industrial and transportation equipment, and information technology hardware industries that make the end-products incorporating electronic components. The report also considers economic, cultural, and political factors influencing Brazil's electronics market. A separate section is devoted to the special circumstances that apply in the Manaus Free Trade Zone. The report highlights market opportunities relevant to U.S. small and medium sized enterprises (SMEs) in the electronic components sector. Finally, the report provides information on market entry requirements and strategies for SMEs, and U.S. Department of Commerce and other resources to help U.S. firms in their market entry endeavors. Appendices list useful contacts in the United States and Brazil, as well as selected trade events in Brazil for the electronic components sector.

The electronic components covered in this report include electronic capacitors (classified under Harmonized System tariff code number 8532), electronic resistors (HS code 8533), printed circuits (HS 8534), electronic connectors (a portion of HS 8536), electronic tubes (HS 8540), discrete semiconductors (HS 8541), and integrated circuits (HS 8542). The first four HS categories listed above are commonly referred to as "passive components" or "passives"; while the last three categories are known as "active components." Other electronic goods, such as liquid crystal display (LCD) screens; switches for electronic applications; transformers; coils, transducers, and other inductors are commonly grouped under the heading of "electronic components", but are excluded here to simplify the comparison of data from different sources and because the volume of U.S.-Brazil trade is small. While an effort was made to harmonize data from sources in Brazil, the U.S., and elsewhere, differences in product classification systems and statistical reporting methods make some inconsistencies unavoidable. The market, production, and trade data presented here are in U.S. dollars except as noted in the text.

This report is based on market research and analysis undertaken in Brazil in August 2002 by Robin Roark, senior international trade specialist in the Commerce Department's Office of Microelectronics, Medical Equipment and Instrumentation. He interviewed electronic equipment manufacturers and electronic component producers, trade associations, industry analysts, and government officials in Brasília, Manaus, and São Paulo, Brazil. U.S. Commercial Service (USCS) market specialists in Brazil attended these interviews and actively supported this work. The author supplemented information gathered from on-site interviews with data from market research firms and a review of available literature. In the body of the report, Brazilian terms are presented in English translation, accompanied occasionally by the original Portuguese words in *italics*. A glossary of terms and abbreviations is provided for quick reference.

EXECUTIVE SUMMARY

ECONOMIC & POLITICAL OVERVIEW

Brazil is South America's largest and most developed country, accounting for about one half of the economic output of the continent. With a GDP exceeding $500 billion, Brazil is the ninth largest economy in the world, and the fifth largest country in the world in terms of population (174.8 million in 2002) and area (3.3 million square miles). Brazil's GDP per capita was $2,950 for 2002; however, wealth in Brazil is unevenly distributed and more than 30 million people live in poverty. Brazil has increasingly become a focal point for investors seeking emerging market opportunities.

The Brazilian economy experienced a welcome period of stability in the first quarter of 2003. After struggling for years, Brazil's economic condition weakened further in the summer of 2002 because of uncertainties about the Fall Presidential elections, a growing debt burden, and fallout from Argentina's continuing economic crisis. Since the inauguration of President Luis Inácio da Silva ('Lula') in January 2003, however, markets have stabilized and the Brazilian *Real* has begun to rebound.

Lula's election initially raised concerns among international investors and capital markets that Brazil might default on its foreign debt, based on his earlier far-left campaign rhetoric. During the 2002 campaign, however, Lula took a much more moderate and conciliatory tone in which he remained committed to Brazil's international obligations and pledged to keep spending in line while pursuing economic growth.

For the foreseeable future, Brazil's economic outlook appears mixed. Despite lingering doubts, expectations for modest economic growth are reasonable: interest rates declined slightly in 2002, and GDP is forecast to grow about two percent in 2003. While inflation held steady around 5 percent for several years, it has increased in recent months. Despite recent strengthening of the *Real*, the currency ended the year 2002 about 10 percent weaker than expected.

ELECTRONIC COMPONENT PRODUCTION

With an estimated $1.9 billion in 2002 shipments, Brazil is the largest producer of electronic components in South America, accounting for over 80 percent of the total value of regional output. The presence of larger domestic markets for electronic products and systems has promoted the emergence of Brazilian electronic component suppliers.

Brazilian electronic component production is limited to passive components, mostly capacitors, resistors, and connectors. Two foreign-invested companies, AVX and Murata, assemble surface-mount device (SMD) capacitors from imported components in the Manaus Free Trade Zone (*ZFM*). There is little production of active components in Brazil, apart from the cathode-ray tubes (CRTs) for televisions and video monitors made in the ZFM. Itaucom, a division of Brazilian IT hardware manufacturer Itautec-Philco,

encapsulates, assembles and tests SDRAM (synchronous dynamic random-access memory) chips from imported wafers, and makes DRAM memory modules in the state of Sao Paulo. The Brazilian subsidiary of Japanese chipmaker NEC imports finished memory chips and assembles them into memory modules, also in Sao Paulo.

Government Promotion of Electronics Industry Development

Given its market potential, few of the world's leading electronic component makers have targeted Brazil for manufacturing investment; most have chosen to put only sales or distribution operations there. The Brazilian government has tried to promote development of the domestic electronics and IT hardware production base through fiscal incentives and procurement policies.

Brazil's informatics law (*Lei de Informática*) was revised in 2001, extending fiscal incentives through 2009 for qualified IT goods manufacturers outside the Manaus Free Trade Zone (*ZFM*), and through 2013 for companies within the ZFM. The primary incentive granted by the informatics law is a reduction in the industrialized products tax or *IPI*). Normal IPI tax rates for electronic components vary by product classification in a range from 2 to 15 percent.

To qualify for fiscal incentives under the informatics law, firms must register a Basic Productive Process (*Processo Produtivo Básico* or *PPB*) document with the Brazilian government. The PPB outlines production steps to be undertaken in Brazil – with a negotiated level of local content – for a particular IT product or product family. A U.S. company thinking about manufacturing in Brazil should consider partnering with a Brazilian firm that has a PPB in place (which could be modified if necessary), since it can take six months or more to create and register a new one. Companies must also invest 5 percent of annual net sales in research and development within Brazil, to qualify for fiscal incentives under the informatics law.

Brazilian federal, state, and municipal governments, as well as government-related agencies and companies, also may follow "buy national" policies that prefer IT products made by both Brazilian-owned manufacturers and foreign companies with local production. While government entities in Brazil are not major buyers of electronic components, they are large buyers of finished IT hardware products, and often favor those with higher local content.

ELECTRONIC COMPONENT MARKETS

Brazil's market for electronic components was valued at $3.7 billion in 2001, and is projected to see a compound annual growth rate (CAGR) of 7.6 percent from 2001 through 2005 when it will reach a total value of $5.4 billion. According to Reed Electronics Research, in 2002 Brazil ranked 17th among electronic component consuming nations, after Singapore and ahead of Canada. Brazil's demand for active components (tubes, discrete semiconductors, and integrated circuits) is growing more rapidly than demand for passive components (capacitors, resistors, printed circuits, and connectors). From 2001 through 2005, the active components market is forecast to grow at a CAGR of

8.6 percent, versus a CAGR of 5.1 percent for passive components. Integrated circuits, which accounted for 46 percent of Brazil's components market in 2001, are forecast to grow to 51 percent of the market in 2005.

Electronic component demand in Brazil is driven largely by three broad component-using industry sectors: consumer electronics manufacturing, industrial and transportation electronics, and information technology hardware. The information technology sector's share of electronic component consumption in Brazil is forecast to grow from 21 to 27 percent of the total over the current decade. The IT sector's growing share of component demand will come at the expense of the consumer electronics industry's share, which is forecast to decline from 50 to 42 percent of the total. The proportion of industrial and transportation-related demand for electronic components is forecast to grow slowly from 1999 to 2009, from 29 to 31 percent of total component demand.

ELECTRONIC COMPONENT TRADE

Brazil remains heavily dependent on imports of electronic components. The U.S., Asian and Western European producing countries are all major suppliers of electronic components to the Brazilian market. With domestic production largely limited to passive components and CRTs, Brazil imports most types of semiconductor devices (discrete semiconductors and integrated circuits) in moderate to sizable quantities.

After reaching a peak of $1.3 billion in 2000, the volume of electronic components trade between the United States and Brazil declined to less than half that amount in 2002. The drop in bilateral trade came as the U.S. economy slid into recession and the Brazilian economy suffered through an energy crisis in 2001, followed by Argentina's economic crisis and the loss of business confidence inspired by continued weakening of the *Real* and the run-up to Brazil's presidential election in 2002.

Despite the shrinking volume of trade, the U.S. maintained a healthy, if declining, trade surplus with Brazil. In 2002, Brazil imported $499 million worth of electronic components from the U.S., representing about 22 percent of component imports from all countries. Brazil ranked 17th among destinations for U.S. exports of electronic components in 2002. While U.S. exports to Brazil declined, U.S. electronic component imports from Brazil grew strongly, nearly tripling during the period from 1999 to 2002. Impressive as this growth is, it began from a small base ($46 million in 1999) and Brazil does not rank among the top 20 suppliers of electronic components to the United States.

Brazil's Hidden Deficit in Electronic Components Trade

The figures cited above capture only direct imports and exports of individual electronic components, traded between the United States and Brazil. The Brazilian Electrical and Electronics Industry Association (*ABINEE*) estimates that the value of electronic components imported in 2000 -- counting components contained in parts and assemblies (such as printed circuit assemblies) and end-products -- reached $6.7 billion, roughly double the value of direct imports alone. When counted in this manner, ABINEE forecasts that electronic component imports could reach a value of $12 billion in 2005.

Alarmed by the looming multibillion-dollar trade deficit in electronic components, the government of former president Fernando Henrique Cardoso outlined a National Informatics Policy (*Política Nacional de Informática*) that included significant investment to foster the microelectronics industry. Because ICs account for 60 percent of its electronic components trade deficit, Brazil's microelectronics policy is focused on 1) IC design; 2) IC back-end production (wafer processing); and 3) the attraction of IC foundries to Brazil. The most developed of these elements is the IC design program, which calls for the attraction of ten international-class IC design houses; establishment of 30 Brazilian IC design startups; and graduating 500 IC design professionals from Brazilian universities by the end of 2005. The administration of President Lula is reviewing Brazil's industrial and trade policies, so there may be changes forthcoming in the national microelectronics program.

Tariffs and Other Taxes

Tariffs or import duties are the primary instrument in Brazil for regulating imports. Since 1990, the country has made substantial progress in reducing tariffs, though rates for many products are still high. Brazil's average applied tariff was 11.8 percent in 2002. The average tariff in 1990, by contrast, was 32 percent. The United States continues to encourage Brazil to reduce or eliminate tariffs on products of interest to U.S. firms.

Brazil, with its Southern Common Market (*Mercado Comum do Sul* or Mercosul) partners Argentina, Paraguay and Uruguay, has set up a Common External Tariff (*Tarifa Externa Comum* or TEC), covering most of its 9,000 tariff items. Tariffs for intra-Mercosul trade are to be removed by 2006. Brazil and other Mercosul members have unilaterally adjusted their tariffs in response to economic crises, and the TEC is full of exceptions. Brazilian import duties on electronic components range from zero to 19.5 percent, depending on the particular item. Importers of electronic components in Brazil must frequently check with authorities to confirm current tariff rates, applicable surcharges, and exemptions.

In addition to tariffs, imports are subject to several other taxes and fees in Brazil, which are usually paid during the customs clearance process. Two taxes account for most of the added import costs. The Industrialized Product Tax (or *IPI)* is a Federal tax that ranges from zero to 15 percent for electronic components. The Merchandise and Service Circulation Tax (or *ICMS)* is a state government value-added tax applicable to both imports and domestic products. The ICMS rate varies among states; in the state of São Paulo, the rate is 18 percent. These two sales taxes are calculated on a cumulative basis.

THE MANAUS FREE TRADE ZONE

The Manaus Free Trade Zone (*Zona Franca de Manaus* or *ZFM*) is the most extensively developed of Brazil's eight free trade zones. The ZFM has a 10,000 square kilometer area that includes the city of Manaus, capital of the state of Amazonas in Brazil's northern region. SUFRAMA (Superintendency of the Manaus Free Trade Zone), an

agency subordinate to the Ministry of Development, Industry, and Foreign Trade (MDIC), administers the ZFM.

Free trade zone status allows goods of foreign origin to enter the ZFM without payment of tariffs or other Federal, State or local import taxes. In addition, the IPI and ICMS taxes are not applied to goods entering the ZFM. With few exceptions, all products imported into the ZFM for processing, reexport or transshipment qualify for these tax exemptions. The ICMS tax is imposed on items produced in the ZFM only when they are shipped out of the free trade zone to other areas of Brazil.

Importers may supply foreign goods from their stock in Manaus to other parts of the country regardless of quantity. These goods, however, are subject to all duties assessed under normal importation, except for of the ICMS, which is reduced to only 4 percent. All manufacturers in the ZFM must register Basic Productive Process (PPB) documents with SUFRAMA to qualify for available fiscal incentives. Fiscal benefits under Brazil's 2001 Informatics Law extend to 2013 for qualified manufacturers within the ZFM.

The Manaus Industrial Pole

Electroelectronics manufacturers within the ZFM are clustered under the Manaus Industrial (*Polo Industrial de Manaus* or *PIM*, an administrative label given to all industrial manufacturing – as distinguished from agricultural and handicraft industry – within the ZFM). Total sales of all industrial products from the PIM in 2002 were slightly more than US$ 9 billion, of which about 53 percent were electronic and IT products. Principal electronic products made in the PIM include color televisions, home audio/video equipment, wired and wireless telephone sets, cellular telephones, mobile audio/video systems, air conditioners, microwave ovens, photocopiers, wristwatches, desktop and notebook computers, computer peripherals, and video monitors (both CRT and LCD).

Sales of electroelectronic goods and IT hardware accounted for an average of 55 percent of total PIM revenues in recent years. Most electronics manufacturing in the PIM is assembly of finished goods, with limited manufacturing of component parts. The fiscal incentives for assembling finished electronic goods in the PIM can add up to a 40 percent cost advantage over similar products made elsewhere in Brazil.

Principal electronics manufacturers found in the PIM include Abril Video (Brazil), BASF (Germany), Brastemp (Brazil), Cônsul (Brazil), Dismac (Brazil), Electrolux (Sweden), Elgin (Brazil), Evadin (Brazil), Gradiente (Brazil), Itautec-Philco (Brazil), LG Electronics (S. Korea), Nokia (Finland), Panasonic (Japan), Philips (Netherlands), Samsung (S. Korea), Sanyo (Japan), SEMP-Toshiba (Brazil-Japan), Sony (Japan), Thomson (France), and Xerox (USA). There are two electronic component manufacturers in the PIM: AVX (Japan) and Murata (Japan), both of which perform final assembly of ceramic capacitors from imported components. According to a government representative, many multinational companies have decided that, with the drop in import duties after 1991, it is more cost-effective to import electronic components than to make them in Brazil.

To improve the competitiveness of the ZFM, SUFRAMA has promoted the establishment of R&D and design centers to complement and serve local manufacturers. One such center is the Genius Institute of Technology, created as an independent technology incubator with funding from Gradiente, a leading Brazilian manufacturer of consumer electronics, cellular telephones, and IT hardware. Genius identifies and evaluates innovations that can be quickly turned into business opportunities by companies within the ZFM, across Brazil and overseas. For example, Genius worked with Motorola to design a field-programmable gate array IC for use in wireless home theater applications.

BEST PROSPECTS FOR ELECTRONIC COMPONENTS IN BRAZIL

Cellular telephones are expected to be the single biggest end-use market for electronic components in Brazil for the next several years. Major cell phone manufacturers in Brazil such as Nokia, Samsung, Gradiente, Sony-Ericsson, Siemens, and LG Electronics are gearing up production to supply growing markets in Brazil and the South American region, and are even exporting to North America. Increasing interest in Voice over Internet Protocol (VoIP) telephony is expected to spur the growth of VoIP-enabled telephone equipment in Brazil.

In the IT hardware sector, sales of notebook computers, which are assembled in Brazil by IBM, HP-Compaq, Semp Toshiba, and Brazilian firms such as HyperDataBrazil (HDB) and Itautec, are expected to grow more rapidly than sales of desktops and servers. Brazil is the largest consumer of computer storage systems in Latin America, and sales of disk storage (especially systems between 100 and 600 gigabytes) are expected to grow strongly in 2003.

Other end-use markets for electronic components in Brazil that are expected to grow over the medium term include digital televisions and set-top boxes (Brazilian government agencies are currently discussing which digital TV standard to adopt). Demand for components in automotive electronic systems is also forecast to see solid growth. The electronics content of Brazilian-made automobiles is increasing, but still well below that of vehicles made for the European, Japanese, and U.S. markets, however.

MARKET ENTRY STRATEGIES

While there are many small and medium-sized Brazilian electronics manufacturers whose component purchases extend no further than local distributors, the market as a whole is dominated by multinational and domestic firms that source electronic components worldwide. A U.S. component supplier who identifies a potential customer or application in Brazil must often trace the supply chain back to the point where component specification and buying decisions are made, often outside Brazil.

Even smaller Brazilian manufacturers are increasingly plugging into the global electronics supply chain. Sol Limitada, for example, is an assembler located in Santa Rita do Sapucai, a town in Minas Gerais state. Sol's primary products – caller ID units – are high-volume, low-cost items sold mainly to large network carriers, banks, and chain

stores. Competition based on cost and time-to-market is strong, and Sol relies on an Asian partner to buy the lowest-cost components and send them to Sol in kit form. Sol then adds a Motorola IC (specified by a Brazilian application engineering company under contract to Sol, and sourced through a Brazilian distributor) and software to localize the caller ID and call-blocking functions for the Brazilian market. In this example, one key electronic component is specified and bought in Brazil, while others are sourced in Asia by a partner company.

The preceding case illustrates why U.S. electronic component suppliers must tailor market entry strategies to the customer and its procurement methods: large manufacturers with global reach, small firms operating in Brazil only, or companies with a mix of these approaches. To sell in Brazil, U.S. component suppliers must market their products to the real purchasing decision-makers, whether they are in Brazil or elsewhere.

Distribution and Sales Channels

All the usual import channels exist in Brazil: agents, distributors, import houses, trading companies, subsidiaries and branches of foreign firms, among others. Brazilian importers generally do not keep large inventories, due in part to high import and storage costs. With the recent creation of more computerized bonded warehouse programs, industries that rely heavily on imported components and parts are maintaining larger inventories in-country.

Although some companies import direct from foreign manufacturers without local representation, usually the presence of a local agent or distributor can be very helpful. Selecting an agent requires careful consideration. In general, larger companies will have sales offices throughout Brazil, which would be key for U.S. companies seeking a countrywide presence. Smaller agents may have geographical limits. Major international electronic component distributors such as Arrow-Panamericana, Avnet, Bell Microproducts, California Eastern, Future Electronics, Ingram Micro, Premier Farnell, and Richardson operate in Brazil.

American companies can freely negotiate distribution or agency contracts with local firms. However, U.S. companies should consult a Brazilian law firm before signing any agreement to avoid future legal problems. Under Brazilian law, an agency agreement entitles the agent to receive a termination amount equivalent to at least 1/12 of all commissions received throughout the contract.

E-Commerce

Brazil has the most advanced Internet and e-commerce environment in Latin America, and B2B e-commerce transactions totaled $3.9 billion in 2001. In three years, this amount is expected to surpass $21 billion. Brazilian electrical and electronics engineers use the Internet to gather technical information and specifications from electronic component supplier (both distributors and manufacturers) websites, but they are often hindered by the limited availability of Portuguese-language support. The use of B2B e-commerce for electronic component purchases is growing among the larger

manufacturers (especially the multinationals) in all of Brazil's electronic component end-use industries, but lags among smaller domestic Brazilian manufacturers.

Joint Ventures, Licensing, Setting up an Office

Establishment of joint ventures is common in Brazil, especially to compete for government procurements or in market segments subject to government regulation, such as telecommunications. Licensing agreements are also commonly used to access the Brazilian market. All licensing and technical assistance agreements must be registered with the Brazilian Industrial Property Institute (INPI). American companies should use a competent local attorney in structuring joint ventures or licensing arrangements.

Setting up a company or acquiring an existing entity are both options for investing in Brazil. Setting up new companies is relatively easy and inexpensive. Acquisitions of existing companies are monitored by the Central Bank. Corporations (*sociedades anônimas*) and limited liability companies (*limitadas*) are fairly easy to form. Local law requires that foreign capital be registered with the Central Bank.

Selling Factors and Pricing

Electronic component sales are typically driven by price, functionality, and quality factors. Brazilian buyers perceive U.S. goods as high quality products, but competition from component producers in Europe and Asia is strong. Other important selling factors include financing, delivery, after sales support and customer service. To be successful in Brazil, U.S. companies should consider adapting products to local technical requirements where necessary, and providing technical support (spec sheets, application assistance, etc.) in Portuguese as needed.

Due to very high local interest rates, the price of products sold in Brazil often reflects financing costs. Therefore, price negotiations are linked to the supplier's payment terms. A company may select a supplier whose prices are higher than the competition, based solely on payment terms. High-volume, low-cost electronic components, if not produced in Brazil, are increasingly sourced from Asia, especially China.

The tax burden in Brazil on both imported and locally made products is much higher in Brazil than in the United States. To be competitive in Brazil, some companies are reducing profit margins and setting up efficient logistics systems to cut costs. U.S. electronic component suppliers should carefully calculate import-related costs. Occasionally, such a calculation may show that an imported product cannot effectively compete with a locally made similar product.

Advertising and Trade Promotion

Advertising in specialized trade and technical publications is a useful tool for marketing electronic components in Brazil. Many Brazilian electronic engineers read Internet versions of U.S. electronics trade publications. The most important publication serving the electronic components market in Brazil is *Noticiário de Produtos Eletrônicos*

(Electronic Products News, known as *NPE-Brazil*), a Portuguese-language monthly published by TL/Hearst Publications. TL/Hearst also publishes EEM Brazil, the Brazilian version of the popular Electronic Engineers Master (EEM) catalog.

Participation in trade fairs is another important marketing tool for increasing product exposure and making business contacts in Brazil. The most important show in Brazil (and in all of South America) for the electronic components market is Electronic Americas, held annually in São Paulo. Many Brazilian electronics engineers and industry executives also attend trade fairs in the Asia, Europe, and the United States.

Need for a Local Attorney

Understanding the legal aspects of the Brazilian market is extremely important. To operate in accordance with Brazilian laws a firm should hire a local lawyer. Without suitable legal help, investors may be subject to several liabilities, ranging from denial of a proper authorization to operate in the Brazilian market, to facing obstacles with a Brazilian partner, causing eventual losses to the U.S. company. Local attorneys can help lessen the tax burden by taking advantage of incentives at the local, state or federal levels. They can also explain and ensure compliance with Brazil's complicated real estate, labor, intellectual property, and antitrust laws. Finally, Brazilian legal counsel can also provide expertise in negotiating with local partners and customers.

PATIENCE IS A VIRTUE

The decision to enter the Brazilian market, by whatever method, is obviously a complex one. A final point to consider is the length of commitment to Brazil your company is willing to make. In general, events move slower there than in the U.S., especially the process of obtaining approvals and documentation from government entities (although the Federal Government, at least, has made huge strides in improving service under its e-government initiatives.) Brazil's market is significant, especially when seen as the gateway to Mercosul, yet it is nowhere near the size of markets in North America, Europe, and Asia, some of which (that is, China) are growing at much higher rates. Companies that are successful in Brazil's market must take a longer view, and make a commitment for more than a year or two.

TERMS & ABBREVIATIONS

$	Unless otherwise noted, dollar figures cited in this report are U.S. dollars
ABINEE	*Associação Brasileira da Indústria Elétrica e Eletrônica* (Brazilian Electrical and Electronics Industry Association)
ALADI	*Associação Latino-Americana de Integração* (Latin American Integration Association)
Aliquota	rate (as in tariff rate)
B2B	business-to-business
BIT	*Bens de Informática e Telecomunicações* (informatics and telecommunications goods)
BK	*Bens de Capital* (capital goods)
BNDES	*Banco Nacional de Desenvolvimento Econômico e Social* (National Economic and Social Development Bank)
CAGR	compound annual growth rate
CEM	contract electronics manufacturer (see also EMS)
CIF	cost, insurance, and freight.
CONIN	*Conselho Nacional de Informática e Automação* National Council on Informatics and Automation
DIMM	dual in-line memory module
EDI	electronic data interchange
EMS	electronic manufacturing services
FDI	foreign direct investment
FTAA	Free Trade Agreement of the Americas
GHz	billion cycles per second
GSM	global system for mobile communications
GSP	General Schedule of Preferences
ICT	information and communications technologies
ICMS	*Imposto sobre Circulação de Mercadorias e Serviços* (Merchandise Circulation Tax)
IDC	International Data Corporation
II	*Imposto de Importação* (Import Duty)
INPI	*Instituto Nacional de Propriedade Industrial* (National Industrial Property Institute)
IPI	*Imposto sobre Produtos Industrializados*

	(Industrial Products Tax)
IPR	intellectual property rights
ISA	industry sector analysis
IT	information technology
ITA	Information Technology Agreement
MERCOSUL	*Mercado Comum do Sul* (Southern Common Market)
NCM	*Nomenclatura Comum do Mercosul* (Mercosul Common Nomenclature for tariff item descriptions)
NTDB	National Trade Data Bank
PC	personal computer
PIM	*Polo Industrial de Manaus* (Manaus Industrial Pole)
PPB	*Processo Produtivo Básico* (Basic Productive Process)
RECOF	*Regime Aduaneiro Especial de Entreposto Industrial sob Controle Informatizado* (Federal Revenue Secretariat's Special Industrial Warehouse Regime Under Computerized Control)
SCM	supply chain management
SDRAM	synchronous dynamic random access memory (integrated circuit)
SIMM	single in-line memory module
SISCOMEX	*Sistema Integrado de Comércio Exterior* **(**computerized trade documentation system for import licensing)
SME	small and medium-sized enterprise
SUFRAMA	*Superintendência da Zona Franca de Manaus* (Superintendency of the Manaus Free Trade Zone)
TEC	*Tarifa Externa Comum* (Mercosul Common External Tariff)
USEAC	U.S. Export Assistance Center
USTR	Office of the U.S. Trade Representative
VAT	value-added tax
VoIP	voice over Internet protocol
WTO	World Trade Organization
ZFM	*Zona Franca de Manaus* (Manaus Free Trade Zone)

CHAPTER 1: COUNTRY OVERVIEW

Brazil is South America's largest and most developed country, accounting for about one half of the economic output of South America. With a GDP exceeding $500 billion, Brazil is the ninth largest economy in the world, and the fifth largest country in the world in terms of population and area. The 2002 census counted 174.8 million people (roughly half the population of South America), and the country covers 3.3 million square miles. Brazil's GDP per capita is listed as $2,950 for 2002, however wealth in Brazil is unevenly distributed; more than 30 million live at sub-Saharan levels of poverty. Brazil - along with China and India - has increasingly become the focus of those looking to invest in emerging countries.

COUNTRY CAPSULE

System of Government: Federative Republic with a multi-party political system.

President: Luis Inacio Lula da Silva (Lula)

Geography: East-central South America, occupying nearly 50 percent of the continent.

Area: 3.3 million square miles

Population: 174.8 million (2002)

GDP: $507 billion (2002); **GDP per Capita:** $2,950 (2002)

Largest Cities: São Paulo (10.4 million), Rio de Janeiro (5.8 million), Salvador (2.4 million), Belo Horizonte (2.2 million), Brasília (2 million), Recife (1.4 million). The four eastern states of São Paulo, Rio de Janeiro, Minas Gerais and Bahia contain about half the population.

Demographics: Density: 53 persons per square mile; Urban/Rural: 80 percent urban, 20 percent rural; sex distribution: 49.9% male, 50.1% female; age breakdown: 35 percent under 15, 28 percent age 15 to 29, 19 percent age 30 to 44, 10 percent age 45 to 59, 6 percent 60 to 74, 2 percent age 75 and over.

Currency: The official currency is the *Real*, which is divided into 100 *centavos*. The average exchange rate during 2002 was 3.533 real/US$. The *Real* weakened steadily against the dollar from 1998 through 2002, but has strengthened slightly in the first quarter of 2003, reaching an average exchange rate of 3.0 *Real*/US Dollar.

Main Products: Aircraft, bauxite, beef, cellulose, cereals, coffee, cocoa, crude oil and petrochemicals, diamonds, furniture, gold, households appliances, hydroelectric power engines, iron ore, manganese, motor vehicles, nickel, orange juice, phosphates, platinum, processed food, quartz crystals, rubber, shoes, silver, soybeans, steel, sugar, textiles, timber, tin, titanium, uranium, and zinc.[1]

[1] Source: Embassy of Brazil.

ECONOMIC OVERVIEW

The Brazilian economy experienced a period of stability in the first quarter of 2003. After struggling for a number of years, Brazil's economic condition deteriorated further in the summer of 2002 as a result of uncertainties about the Fall Presidential elections, Brazil's growing debt burden, and fallout from Argentina's ongoing economic crisis. Since the election and subsequent inauguration of President Lula in January, however, markets have stabilized somewhat and the *Real* has begun to rebound. Despite some lingering uncertainties, expectations for modest economic growth are reasonable; interest rates declined slightly in 2002, and GDP is forecast to grow at about 2.0 percent in 2003.

According to the Central Bank of Brazil, the economy actually began showing initial signs of a modest recovery between the third and fourth quarters of 2002. This was due in part to increased consumption of semi and non-durable goods, an increase in earnings in the agricultural sector, and the acceleration of growth in exports. Other factors credited for improved conditions included a more positive perception of the political scenario, a decline in concerns about higher unemployment and an improvement in consumer confidence. (The Consumer Intentions Index, as measured by the Federation of Commerce of São Paulo, increased slightly in late 2002).[2]

Brazil's Central Bank predicts the country's current account balance will dip below $9 billion for 2002 due mainly to an anticipated trade surplus. The projected deficit for 2003 is forecast to go still lower to around $8 billion, with an expected trade surplus of $15 billion. Financing for the current account deficit will continue to come from inflows of foreign direct investment, a trend that began with the floating of the exchange rate in 1999 and has continued over time. The Central Bank forecasts that the net inflow of foreign direct investment will be twice as large as the current account deficit in 2003. Total foreign debt fell by $4.1 billion to $215 billion in the third quarter of 2002.[3]

For the foreseeable future, Brazil's economic outlook continues to look mixed. While inflation has held steady at around 5 percent for several years, it has increased in recent months. Some analysts believe that the recent currency shocks, which have hurt imports over the past 12 **B** 24 months, may have a more lasting effect on inflation than originally anticipated. Despite a recent strengthening in the *Real*, the currency ended the year about 10 percent weaker than anticipated, and the forecast for 2003 was recently adjusted accordingly.

As a result of rising inflationary expectations, monetary officials are likely to maintain interest rates at their current levels through the end of the year. Analysts generally do not expect inflationary pressures to abate significantly through the end of the year. In fact, despite some moderation in exchange rate volatility predicted for next year, most analysts believe inflationary pressures may increase, based on expectation that retailers are likely to pass through the cost of this year's exchange rate weakening into consumer prices.

[2] Central Bank of Brazil; Brazilian Institute of Geography and Statistics, December 2002.
[3] Ibid.

POLITICAL CLIMATE

Brazil is a federal republic with 26 states plus the Federal District of Brasília. The federal government is comprised of the executive, legislative, and judicial branches. Brazil's Constitution was crafted in 1988, granting broad powers to the federal government. The President may be elected to two four-year terms, and appoints the cabinet. The Congress consists of two houses, the Senate and the Chamber of Deputies. There are 81 Senators, three for each state and the Federal District, and 513 Deputies. In addition to geographic imbalance, Congress is characterized by a large number of political parties. States are organized similar to the federal government, each with three branches of government. Because of mandatory revenue allocation to states and municipalities provided for in the 1988 Constitution, Brazilian governors and mayors have exercised considerable power since 1989. Additional information is available at www.brasilemb.org/links1.shtml.

Last year all of Brazil was focused on the Presidential campaign that ended with the election of four-time Presidential candidate and leader of the Workers Party (PT) Luis Inácio da Silva ('Lula') in October 2002. Lula defeated his challenger José Serra from incumbent president Cardoso's Brazilian Social Democratic Party by a comfortable majority of about 61 percent. The new president faces formidable political challenges. Although Lula won in a landslide, the PT is still a minority party in Congress. In order to carry out the President's broad agenda, Lula and his party will need to reconcile diverging interests within his existing coalition, which includes those committed to orthodox economic policy as well as supporters of Lula's previously advocated leftist agenda. Complicating matters, the governors of Brazil's 26 states are split between the PT and the other major parties. Governors have broad powers and tend to follow their own agenda - even going against their own party when it suits them.

The election of Lula initially created concerns among international investors and capital markets, with some fearing that Brazil might default on its sizable ($260 billion) foreign debt. Concerns were based on Lula's rhetoric during previous Presidential campaigns, in which he espoused far-left positions such as ending privatization and defaulting on international debt commitments. However, during the 2002 campaign, Lula took a much more moderate and conciliatory tone in which he remained committed to Brazil's international obligations and pledged to keep spending in-line while pursuing economic growth.

While Lula is likely to abide by promises to maintain fiscal discipline and comply with contractual obligations, the new government may reorder certain priorities. Lula may, for example, push for a larger public sector minimum wage increase while pushing to maintain rather than lower current income tax rates. In addition to economic growth, Lula outlined several other priorities for his administration such as the Zero Hunger program, a focus on social needs and environment, and fiscal responsibility. How all of these goals will be accomplished remains to be seen.

So far, Lula's fiscal policy appears to be a relatively smooth continuation of policies from the Cardoso administration. Meanwhile the markets will be watching Lula closely for

signs of radical policy shifts or other actions that might complicate Brazil's investment climate.

TRADE AND INVESTMENT CLIMATE

Foreign direct investment (FDI) is an important source of financing for Brazil. The Brazilian Government has lifted or mitigated many restrictions over the past several years to encourage foreign investors. In 2002 Brazil attracted an estimated $18 billion in foreign direct investment. A recent decline in FDI reflects, in part, the slower pace of privatization in recent years. Brazil and the United States have a balanced and expanding trade relationship with about $30 billion in total trade annually. In 2002, a third of Brazil's foreign investment was from the United States.[4]

All foreign investment must be registered with the Central Bank. Registration can be done electronically, and in most cases is a pro forma matter. Investors must have a representative in Brazil and be registered with the Brazilian Securities Commission (CVM). The certificate of registration permits remittances of profits and repatriation of capital without additional Central Bank authorization.

There are few restrictions on converting or transferring funds associated with an investment. At this time, foreign investors may freely convert Brazilian currency in the unified foreign exchange market wherein buy-sell rates are mainly determined by market forces. All foreign exchange transactions, including identifying data, must be reported to the Central Bank. Foreign exchange transactions on the current account have been fully liberalized in practice, and in 2000 the Central Bank greatly simplified requirements for capital account transactions.

Brazil is a signatory to the GATT Uruguay Round Accords, including the Trade Related Aspects of Intellectual Property (TRIPS) Agreement, signed in April 1994. Following passage of copyright and software copyright protection legislation in 1998, pending legislation on the protection of layout designs of integrated circuits is expected to bring Brazil's intellectual property rights regime up to TRIPS standards.

Widespread piracy of copyright and trademark material (e.g., software, recordings, and video content) is a problem, and in 2003 Brazil remained on the "priority watch list" (of countries deserving extra monitoring) in the U.S. Trade Representative's (USTR) annual National Trade Estimate report on the adequacy and effectiveness of intellectual property protection worldwide. According to the USTR, Brazil's ineffective enforcement of copyright law led to U.S. losses from piracy valued at $777 million in 2002. Brazil prosecuted many piracy cases in 2002, but won few convictions. Brazil is a member of the World Intellectual Property Organization (WIPO) and a signatory of the Berne Convention on artistic property, the Washington Patent Cooperation Treaty, and the Paris Convention on Protection of Intellectual Property.

[4] U.S. Department of Commerce, International Trade Administration.

Brazil has led political efforts for economic integration in the Southern Cone of South America. No discussion of trade with Brazil is complete without mentioning Mercosul, a treaty that established a common market among the Argentina, Brazil, Paraguay and Uruguay facilitating the free movement of goods, services and factors of production between these countries.[5] The agreement is designed to eliminate customs duties and non-tariff restrictions, to establish a common external tariff, and to adopt common trade policies. The agreement also calls for the coordination of the members' positions in regional and global economic and commercial forums, and macroeconomic and sectorial policies in the area of foreign trade. Mercosul is also meant to ensure fair competition between the parties and as a commitment by the members to harmonize their legislation in relevant areas.

Brazil has signed Bilateral Investment Treaties (BITs) with 14 countries and completed negotiations on two regional Mercosul agreements since 1994. There are two Mercosul investment-related agreements: the Buenos Aires Protocol (governing "extrabloc" investment) and the Colonia Protocol (relating to "intrabloc" investment); the latter has not yet been signed by Brazil. Seven of the bilateral investment treaties have been sent to the Brazilian Congress, but have not been ratified. The United States signed an Investment Warranty Treaty with Brazil in 1965, but the countries currently have no plans to discuss a BIT. Programs of the U.S. Overseas Private Investment Corporation (OPIC) are fully available for investment in Brazil and OPIC activity has increased there in recent years.[6]

Brazil is also a member of the Latin American Integration Association (ALADI, *Associação Latino-Americana de Integração*), an organization established by the Treaty of Montevideo (August 1980) that became operational in March 1981. ALADI seeks economic cooperation among its 11 members: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.[7] ALADI replaced the Latin American Free Trade Association (LAFTA), which was established in 1960 to developing a common market in Latin America. LAFTA made little progress, and ALADI was created with a more flexible and more limited role of encouraging free trade, but with no timetable for the institution of a common market. Members approved a Regional Tariff Preference scheme in 1984 and expanded upon it in 1987 and 1990.

Brazil has not yet signed the Information Technology Agreement (ITA), which requires participants to eliminate import duties on a wide range of information technology goods, including integrated circuits and most other electronic components. The U.S. Government has tried since 1996 to persuade Brazil of the benefits of participation in the ITA. Despite some support for Brazilian ITA membership within Brazil's IT industry, successive Brazilian governments have preferred to remain out of the Agreement, in the hope of obtaining more favorable access to world markets for Brazilian exports (especially agricultural goods) in multilateral trade negotiations such as the Free Trade

[5] Find more information about Mercosul at http://www.mercosul.gov.br/.
[6] OPIC program information can be found at http://www.opic.gov/.
[7] More information about ALADI is available at http://www.aladi.org/.

Area of the Americas (FTAA) and the World Trade Organization's Doha round of global trade talks.

Brazil and the United States currently co-chair the FTAA talks, which are intended to create a hemisphere-wide free trade zone by 2005. Brazil insists that the FTAA will only become reality if the U.S. government reduces its subsidies to U.S. agribusiness and improves access to the U.S. market for Brazilian exports such as coffee, orange juice, and steel. Argentina and Brazil have both recently emphasized that advancement of Mercosul's regional integration agenda takes priority over the FTAA negotiations. Brazilian negotiators have also indicated their desire for a lengthy transition period to ensure that local production will not be lost when and if information technology tariffs are cut. Despite their differing viewpoints, at their summit meeting in June 2003 Presidents Bush and Lula reaffirmed their commitment to complete the FTAA agreement by January 2005 as originally scheduled.

CHAPTER 2: BRAZIL'S ELECTRONICS MARKET

MARKET OVERVIEW

Brazil is by far the largest market for electronic components in South America, accounting for about 60 percent of sales in the region.[8] The country is also the most intensive user of active and passive components on the continent, in both per capita and percent-of-GDP terms. This is a direct result of the generally more developed state of downstream electronics-based industries in Brazil relative to its South American neighbors.

Brazil's consumer electronics, information technology, telecommunications, and electronics-using industrial equipment and transportation industries dwarf those of all other South American nations. Brazil is one of the world's larger producers of television sets, and a major supplier of other consumer electronic products and "white goods" (i.e., electro-domestic products such as air conditioners, microwave ovens, and refrigerators). Brazil is also a major manufacturer of vehicles, and even has a growing commercial aircraft industry. The IT hardware sector in Brazil is sizeable and dominated by multinational original equipment manufacturers (OEMs) and electronic manufacturing services (EMS) providers.

The composition of Brazil's industrial infrastructure dictates that its electronic component requirements are higher than those of its regional neighbors. Even so, both the level and intensity of use of electronic components in Brazil lags substantially behind most developed countries and even some developing nations, especially Asian electronics manufacturing centers such as China, Malaysia, the Philippines, and Singapore.

Electronic Component Production in Brazil

With an estimated $1.9 billion in 2002 shipments, Brazil is also far and away the largest indigenous producer of electronic components in South America, accounting for over 80 percent of the total value of regional output.[9] The presence of larger domestic markets for electronics-based products and systems has facilitated the emergence of Brazilian electronic component suppliers.

Given its market potential, a number of the world's leading electronic component multinationals have targeted Brazil for investment. Among those already maintaining manufacturing operations in the country are EPCOS (via Icotron-Indústria de Componentes Eletrônicos Limitada), Kyocera (via AVX), Matsushita Electric Industrial (via Panasonic), Molex, Murata, NEC, Samsung Electronics, TDK and Tyco Electronics

[8] "Brazil – Electronic Components Supply and Demand", World Electronic Components to 2004, Freedonia Group, 2000.
[9] Yearbook of World Electronics Data, Reed Electronics Research, 2002.

(formerly Siemens Electromechanical Components). Numerous other multinational electronic component manufacturers are active in the country through sales or distribution operations.

Brazilian electronic component production is generally limited to passive components, mostly capacitors, resistors, and connectors. Both AVX and Murata assemble surface-mount device (SMD) or "chip" capacitors from imported components in the Manaus Free Trade Zone (*ZFM*). There is little production of active components in Brazil, aside from the cathode ray tubes (CRTs) for televisions and computer monitors manufactured in the ZFM. Itaucom, a division of Brazilian IT hardware manufacturer Itautec-Philco, encapsulates, assembles and tests 64Mb, 128 Mb, and 256Mb SDRAM (synchronous dynamic random access memory) chips from imported wafers, and also manufactures memory modules. The Brazilian subsidiary of Japanese chipmaker NEC imports finished memory chips and assembles them into memory modules, but there is no commercial-scale semiconductor manufacturing in the country.[10]

Government Policies to Promote the Electronic Components Industry

Brazil's Informatics Law

The Brazilian government nurtures the growth of the domestic electronics and IT hardware production base through fiscal incentives, procurement policies, and tariffs. The 1991 revision of Brazil's informatics law (*Lei de Informática*) included electronic components with other IT products under the official designation of information technology goods (*bens de informática* or BIT). This allowed domestic component producers (along with makers of other IT products, such as PCs and telephones) to qualify for fiscal incentives, primarily a reduction in the industrialized products tax (IPI) that is collected when finished products are sold (either domestically or exported).

The 1991 informatics law expired in 1999, but a new informatics law was enacted in January 2001 (Law 10.176) and fiscal incentives were extended nationwide through 2009, and through 2013 in the Manaus Free Trade Zone (ZFM). In 2001, qualified IT product manufacturers outside the ZFM were eligible for a 95 percent reduction in the IPI, with the tax reduction diminishing by 5 percent per year until it is totally eliminated in 2009. IT manufacturers in the ZFM are eligible for total exemption from IPI through 2013. IPI tax rates for electronic components vary by product classification in a range from 2 to 15 percent.[11]

To qualify for fiscal incentives under the informatics law, a company must register a Basic Productive Process (*Processo Produtivo Básico* or PPB) document jointly with the Ministry of Development, Industry and Foreign Trade (MDIC) and the Ministry of Science and Technology (MCT). The PPB outlines a defined set of production steps to be undertaken in Brazil - with a given (negotiated with MDIC and MCT) level of local

[10] Interview with Wilson Bertoli Filho, Marketing Manager, Solectron Brazil Ltda., August 8, 2002.
[11] "President Fernando Henrique Cardoso Sanctions the New IT Law", International Market Insight, U.S. Department of Commerce, U.S. Commercial Service, February 2001.

content - for the manufacture of an IT product. Thus, PPBs are product- and company-specific. As of April 2003, over 400 PPBs had been submitted for approval, of which 262 were published in final form.[12]

American companies thinking of manufacturing products in Brazil must carefully consider the creation and registration of a new PPB, and possible overlap with existing PPBs, in making a decision on whether to import products or manufacture in Brazil. In some cases, it may be advantageous to partner with a Brazilian firm that has a PPB already in place (which could be modified if necessary), since it may take upwards of six months to create and register a new PPB.[13] Companies must also invest 5 percent of annual net sales in research and development within Brazil, to qualify for fiscal incentives under the new informatics law.

Government Procurement

Government procurement regulations contained in Brazil's Law 8666 of August 1993 establish an open competitive process for major government procurements. Under Law 8666, price is the determining factor in selecting suppliers, i.e., the lowest price bid becomes the provisional winner. Following enactment of Constitutional Amendment No. 6 in August 1995, which suppressed the difference between nationally-owned and foreign-owned companies, there is no distinction between Brazilian and foreign enterprises in the government procurement process. Brazil is not a signatory of the WTO government procurement agreement, but it is a participant in the FTAA negotiations, which are expected to result in an agreement containing a chapter regulating government procurement at the federal level.

Brazilian federal, state, and municipal governments, as well as related agencies and companies, may pursue certain "buy national" policies that give preferential treatment to both Brazilian-owned manufacturers and foreign companies with local production facilities.[14] While government entities in Brazil are not major purchasers of electronic components, they are fairly substantial buyers of finished IT hardware products. There are no specific offsets or local content requirements in Brazilian government procurement regulations. In the event of a tie between competing bids, however, preference is given to goods produced in Brazil, irrespective of the makeup of the equity of the company producing them. The new informatics law allows government entities to exercise a preference in IT purchases, firstly, to favor goods and services using technology developed in Brazil and, secondly, to goods manufactured in compliance with "Basic Productive Process" requirements.

In the case of international bids to supply goods and services for specific government projects, successful bidders are required to have local representation (i.e., "legal presence") in Brazil. Since the bidding period is often as short as one month, foreign

[12] "Statistical Report on the Process of Analysis and Approval of Proposed Basic Productive Processes", Ministry of Development, Industry and Foreign Trade (MDIC), April 10, 2003.
[13] Interview with Esther Nunes, Partner, Pinheiro Neto Advogados, August 8, 2002.
[14] 2002 Special 301 Submission: Brazil, Intellectual Property Alliance, February 2002.

bidders should have a partner resident in Brazil to act on tenders as soon as they are announced.

With the advance of information technology and Brazil's success in providing e-government services, the Government of Brazil is changing Law 8666 to improve the legislation on electronic procurement. The GOB proposes to provide a more efficient system using electronic purchase contracts and to allow small companies better chances to compete with other small, medium, and large companies.

Customs Procedures

In an effort to spur IT exports, the Brazilian government allows informatics firms to import duty-free those inputs and components used to make products which will subsequently be exported. Companies authorized to operate under the Federal Revenue Secretariat's Special Industrial Warehouse Regime under Computerized Control (RECOF) have their imports clear customs automatically into their in-bond warehouses, bypassing a process that usually takes from two weeks to a month.

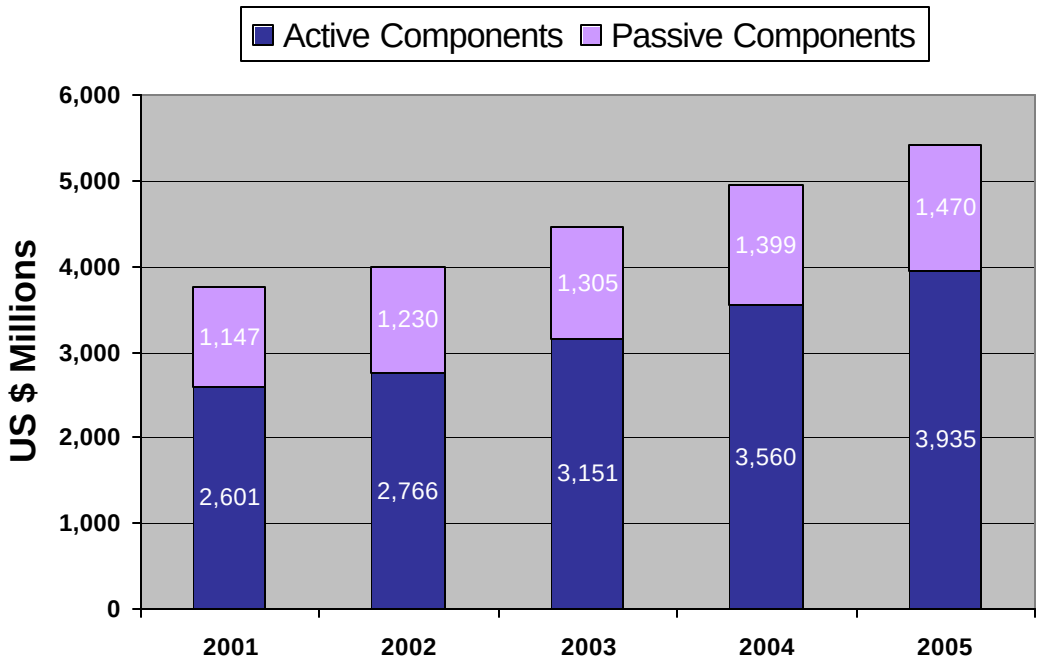
RECOF participants defer import duty payments until the sale of the product that contains the imported component. In return for streamlined import processing, firms agree to export at least $8 million worth of goods from Brazil in the first year and $16 million in the second.[15] Compaq, Dell, Ericsson, Flextronics, Hewlett-Packard, Lucent, Motorola, Solectron, and Visteon have already been authorized to use RECOF. While approval to participate in RECOF can take up to a year, the savings can be substantial. According to Dell, savings in import processing costs have ranged from 50 to 70 percent since it began to use the RECOF program.[16]

ELECTRONIC COMPONENT DEMAND

Brazil's market for electronic components was valued at $3.7 billion in 2001, and is projected to see a compound annual growth rate (CAGR) of 7.6 percent from 2001 through 2005 to reach a total value of $5.4 billion.[17] According to Reed Electronics Research, in 2002 Brazil ranked 17th among electronic component consuming nations, after Singapore and ahead of Canada.

[15] Virtual Imports on the Rise", International Market Insight, U.S. Department of Commerce, U.S. Commercial Service, May 30, 2001.
[16] "South and Central America, Back To Global Expansion: The Changing Face of Business", Anne Vazquez, Business Facilities, September 2000.
[17] Yearbook of World Electronics Data, Reed Electronics Research, 2002.

Figure 2-1: Brazil's Electronic Components Market 2001 – 2005



Source: Reed Electronics Research, 2002; U.S. Department of Commerce.

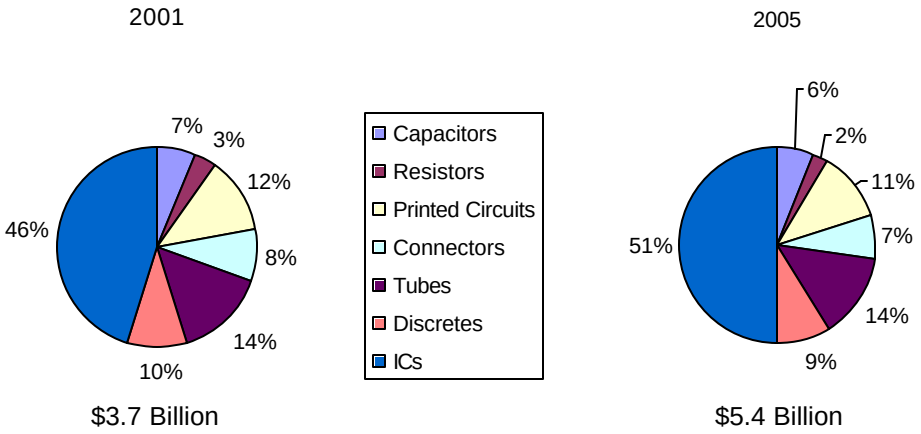
Brazil's demand for active components (tubes, discrete semiconductors, and integrated circuits) is growing more rapidly than demand for passive components (capacitors, resistors, printed circuits, and connectors). From 2001 through 2005, the active components market is forecast to grow at a CAGR of 8.6 percent, versus a CAGR of 5.1 percent for passive components.[18] In 2001, active components represented 70 percent of total electronic component consumption. Integrated circuits, which accounted for 46 percent of Brazil's components market in 2001, are forecast to grow to 51 percent of the market in 2005, as shown in Figure 2-2.

END-USE MARKETS FOR ELECTRONIC COMPONENTS

Electronic component demand in Brazil is driven largely by three broad component-using industry sectors: consumer electronics manufacturing, industrial and transportation electronics, and information technology hardware. The information technology sector's share of electronic component consumption is forecast to grow from 21 to 27 percent of the total over the current decade, at the expense of the consumer electronics industry's share, which if forecast to decline from 50 to 42 percent of demand. The proportion of industrial and transportation-related demand for electronic components is forecast to grow slowly from 1999 to 2009, from 29 to 31 percent of total component demand.[19]

[18] Ibid.
[19] "Brazil – Electronic Components Supply and Demand", World Electronic Components to 2004, Freedonia Group, 2000.

Figure 2-2: Electronic Component Demand by Type, 2001 and 2005



Source: Reed Electronics Research, 2002; U. S. Department of Commerce.

The Consumer Electronics Sector

Brazil has the largest production base, and the largest market for consumer electronic goods in South America. With manufacturing sites located mostly in the Manaus Free Trade Zone and in São Paulo state, Brazil's consumer electronics industry manufactures black-and-white and color TVs; the full range of home audio/video equipment; mobile audio/video systems; air conditioners, microwave ovens, and other home appliances; refrigerators, freezers, washers, dryers, and other "white goods"; electric power tools, etc. According to ABINEE, the consumer electronics sector was the second largest (after informatics) market segment, accounting for 20 percent of total electro-electronics sales in Brazil in 2002, up 14 percent over the previous year.[20]

Major consumer electronics manufacturers in Brazil include Arno, Black & Decker, Bosch-Continental, CCE, Electrolux, Elgin, Evadin, GE-Dako, Gradiente, Itautec-Philco, JVC, LG Electronics, Multibras (Brastemp, Consul, and Whirlpool brands), Panasonic, Philips, Samsung, SempToshiba, Singer, Sony, and Thomson Multimedia.

The Industrial Automation, Industrial Equipment, and Transportation Sectors

The industrial automation and industrial equipment segments together accounted for 16 percent of total electro-electronics sales in Brazil in 2002, according to ABINEE. The industrial automation sector includes process and numerical control equipment, measuring instruments, sensors, and electromedical equipment. Industrial equipment includes industrial machines and systems that incorporate electronic components such as electric motors, generators, furnaces, control panels, low voltage routers, etc. In 2002, industrial automation sales were up 22 percent over 2001, while sales of industrial equipment were up by 8 percent year-on-year.[21]

[20] "Faturamento Total por Area", Desempenho Setorial, ABINEE, March 2003.
[21] "Faturamento Total por Area", Desempenho Setorial, ABINEE, March 2003.

The term *"eletrônica embarcada"* in Brazil refers to mobile (or "on-board") vehicle electronic systems, and represents a growing market for electronic component suppliers. Brazil boasts a sizeable motor vehicle manufacturing industry, which turned out nearly 1.8 million units in 2002.[22] Vehicle manufacturing facilities are located mainly in the industrialized southeastern and southern states of São Paulo, Paraná, Minas Gerais, Rio de Janeiro, and Rio Grande do Sul. Brazil hosts an impressive list of global vehicle (both automotive and agricultural) manufacturers: Case/International Harvester, Caterpillar, Daimler-Chrysler, Fiat, Ford, General Motors, Honda, John Deere, Komatsu, Mitsubishi, Nissan, Peugeot, Citroen, Renault, Scania, Toyota, Volkswagen, and Volvo. While the electronic content of Brazilian-built vehicles lags that of the more advanced Western nations, it has been increasing steadily in recent years.

Embraer (*Empresa Brasileira de Aeronautica*), a major supplier of commuter aircraft located in São Jose dos Campos, São Paulo state, dominates Brazil's aeronautics industry. Dozens of companies have been formed to supply Brazil's aeronautics market, including several dedicated to the supply and maintenance/repair of aircraft electronic navigation and communications equipment.

Information Technology Hardware

Brazil is the leading information technology (IT) market in South America, accounting for about half of total spending on IT products and services in the region, according to International Data Corporation (IDC). Brazilian IT spending grew strongly for much of the 1990s, as Brazil liberalized trade, privatized telecommunications, and moved to control inflation and stabilize its economy. Although this growth was interrupted in 1999 by a regional recession, the IT market recovered strongly in 2000, only to contract again in 2001 when demand fell by about 10 percent as economic conditions worsened.

Brazil's IT hardware (computer systems, storage, and peripherals; and networking equipment) market was valued at $4.9 billion in 2002. IT hardware demand is forecast to grow by a CAGR of 5.6 percent from 2002 through 2005, when it will reach $5.8 billion.[23] In 2002, Brazil's IT hardware market represented the largest share – 39 percent – of the Latin American regional total, larger than second-place Mexico's 32 percent share. Yet Brazil's share of the total world IT hardware market was only 1.5 percent in 2002, and the entire Latin America region's share (4 percent) was still smaller than that of China (5 percent).

Multinational computer hardware suppliers have served their Brazilian customers largely from plants located there. IBM and Unisys had a manufacturing presence in Brazil even during the period of Brazil's market reserve policy and were followed by Compaq, Dell, Hewlett Packard, Samsung and others after liberalization began in 1990. Most Brazilian-owned computer hardware makers over the past decade either went out of business, moved into other areas such as IT services and distribution, or were acquired by foreign

[22] "Brazil – Vehicles – Production, Domestic Sales, and Exports", Statistical Annual of the Brazilian Automotive Industry 2003, National Association of Automotive Vehicle Manufacturers (ANFAVEA).
[23] Worldwide Black Book, International Data Corporation, 2003.

firms entering the Brazilian market. The survivors (such as Itautec, Microtec, and Tropcom) were either the subsidiaries of larger industrial and financial conglomerates or the more successful Brazilian manufacturers who entered joint ventures with foreign partners to gain access to the latest technologies.

A similar pattern occurred among telecommunications equipment manufacturers, with a few long-time players such as Alcatel, Ericsson, Olivetti, and Philips being followed in recent years by Cisco Systems, LG Electronics, Lucent, Motorola, Nokia, Nortel, Qualcomm, Samsung and others. Unfortunately, sales of telecommunications equipment shrank by 35 percent in 2002 from the previous year, as service providers withheld orders in the poor economic environment.[24] The telecommunications equipment sector was sustained by growing sales (and exports, especially to the United States) of cellular telephones made in Brazil.

Major electronics manufacturing services (EMS) providers such as Benchmark, Celestica, Flextronics, Jabil Circuit, Sanmina-SCI, and Solectron have established operations in Brazil to serve both Brazilian and multinational clients. These companies concentrate on meeting domestic demand, but also play an important role in Brazilian IT hardware exports to other Mercosul countries since they can ship their products to Argentina, Paraguay, and Uruguay duty free. EMS providers and OEMs in Brazil also receive tariff preferences on exports to the ALADI countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela).

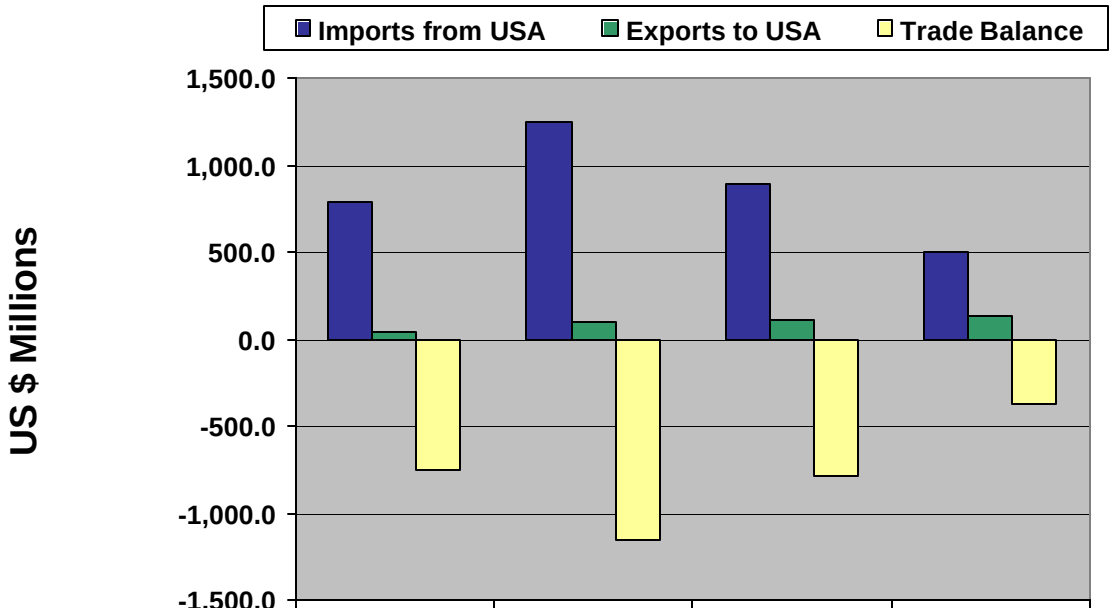
U.S. – BRAZIL ELECTRONIC COMPONENT TRADE

Brazil remains heavily dependent on imports of electronic components, running a trade deficit equivalent to an average of 56 percent of total demand from 1999-2002. The U.S., Asian and Western European producing countries are all major suppliers of electronic components to the Brazilian market. With domestic production largely limited to passive components and CRTs, Brazil imports most types of semiconductor devices (discrete semiconductors and ICs) in moderate to sizeable quantities.

The volume of trade in electronic components between the United States and Brazil has declined by a CAGR of 6.9 percent during the period from 1999 to 2002. After reaching a peak of $1.3 billion in 2000, electronic components trade declined to less than half that amount in 2002, as the U.S. economy slid into recession and the Brazilian economy suffered from an energy crisis in 2001 followed by the decline in business confidence inspired by neighboring Argentina's economic crisis, the continued weakening of the *Real*, and the run-up to Brazil's presidential election in 2002.

[24] "Faturamento Total por Area", Desempenho Setorial, ABINEE, March 2003.

Figure 2-3: Brazil - U.S. Electronic Components Trade, 1999 - 2002



	1999	2000	2001	2002
Imports from USA	791.4	1,244.5	896.7	499.3
Exports to USA	45.6	93.7	115.3	129.8
Trade Balance	-745.8	-1,150.8	-781.3	-369.5

Source: Brazil, Secretariat of Foreign Trade (SECEX), 2003; U.S. Department of Commerce.

Despite the shrinking volume of trade, the U.S. maintained a healthy, if declining, trade surplus with Brazil, as shown in Figure 2-3. In 2002, Brazil imported $499 million worth of electronic components from the U.S., representing about 22 percent of component imports from all countries. The U.S. share of total Brazilian electronic component imports declined from a high of 38 percent in 2000, due to sharp competition from European and Asian suppliers, some of whom are vertically integrated producers of electronic components and the end-products that incorporate them. For example, Samsung's chip-making division supplies many of the ICs used in the hot-selling computer monitors, VCRs, and cell phones it assembles in Brazil. Brazil ranked 17th among destinations for U.S. exports of electronic components in 2002.

While U.S. exports to Brazil declined, U.S. electronic component imports from Brazil grew strongly, nearly tripling during the period from 1999 to 2002. Impressive as this growth is, it began from a small base ($46 million in 1999) and Brazil does not even rank among the top 20 suppliers of electronic components to the United States.

Brazil's Hidden Deficit in Electronic Components Trade

The trade figures cited above capture only direct imports and exports of individual electronic components, shipped between the United States and Brazil. ABINEE has estimated that the value of electronic components imported in 2000, if components

contained in parts and assemblies (printed circuit assemblies, memory modules, etc.) and end-products were counted, reached $6.7 billion, roughly double the value of direct imports alone. When counted in this manner, ABINEE forecast that electronic component imports could reach a value of $12 billion in 2005.[25]

Alarmed by the looming multi-billion-dollar trade deficit in electronic components, several voices in Brazil have called for stronger efforts to develop the local component manufacturing. ABINEE foresees the competitive replacement of $5 billion worth of imports per year, beginning in 2005.[26] This would initially be brought about by a series of government measures to strengthen the manufacture of components already produced in Brazil (e.g., capacitors, diodes, memory encapsulation and module production, other passive and electromechanical components). Next would come the creation of specific benefits and incentives to attract foreign investment and technology for the manufacture of first a limited range of niche semiconductors, passive and electromechanical surface-mount devices (SMD), followed by additional incentives to attract full-line (e.g., microprocessors and memories) integrated circuit manufacturing investment.

Under former president Fernando Henrique Cardoso, the Ministry of Science and Technology (MCT), together with the Ministry of Development, Industry, and Foreign Trade (MDIC) outlined a National Informatics Policy (*Política Nacional de Informática*) that included significant investment to foster the microelectronics industry. In view of the fact that integrated circuits on average account for 60 percent of Brazil's electronic components trade deficit, the microelectronics policy focused on 1) IC design; 2) IC back-end production (wafer processing); and 3) the attraction of IC foundries to Brazil. Of these three elements, the most developed is the IC design program.

National Microelectronics Program – Design

Over a four-year span beginning in August, 2001, the National Microelectronics Program – Design (*PNM – Design*) calls for the attraction of ten international-class (foreign investment) IC design houses; establishment of 30 Brazilian IC design startups; and the graduation of 500 IC design professionals (at the doctorate and masters levels) from Brazilian universities.[27] The program counts on a projected federal budget of BR$ 238 million *Reais* (roughly $80 million US dollars) over four years beginning in August 2001. The new administration of President Luis Inacio da Silva is currently reviewing Brazil's industrial and trade policies, so there may be changes forthcoming in the national microelectronics program.

At least one IC design house funded by foreign investment – Motorola's Brazilian Semiconductor Technology Center (BSTC) in Jaguariuna, São Paulo state – is now operating with approximately 100 specialists focused on 8-bit microcontroller (MCU)

[25] "Stimuli for Attracting the Electronic Components Manufacturers", Sergio Galdieri, Executive Vice President of ABINEE (Brazilian Electrical and Electronics Industry Association), presentation at the 7th World Electronics Forum, São Paulo, Brazil, November 2001.
[26] Ibid.
[27] "Programa Nacional de Microeletrônica – Design", Brazil, Ministry of Science and Technology, Secretariat of Informatics Policy, 2001.

design. *Electronic Products* magazine named Motorola's BSTC-designed Nitron HCO8 Q-Series family of flash-based 8-bit microcontrollers as a "product of the year" for 2002.[28] BSTC-designed ICs are fabricated at Motorola plants in the U.S., Asia, and elsewhere.

Motorola is also cooperating with MCT on a plan to build a small wafer fab (using equipment imported from a Motorola fab in Austin, Texas) in the state of Rio Grande do Sul. The pilot-scale production line is set to start up in the second quarter of 2004, and will reportedly be used for research and development, and training.[29] Motorola is also supporting the PNM - Design initiative by offering Brazilian universities, technical schools, and IC design houses 1,500 systems for design of 8-bit MCUs and training in their use.

TRADE REGULATIONS, PROCEDURES, AND STANDARDS

Import Regulations

Brazil requires all importing companies to register with the Secretariat of Foreign Trade (SECEX); only registered companies can import goods into Brazil. Brazilian authorities have imposed import licensing rules and anti-dumping measures on some imports. For those products not subject to restrictions, importers can directly connect to SISCOMEX, an electronic trade-management system through which most documents can be obtained.

The import license stipulates the period of validity for the shipment of the goods. All licenses are normally limited to 60 days and goods must be shipped before the license expires. There are fees assessed per import statement submitted through SISCOMEX, and importers must comply with onerous registration guidelines, including a minimum capital requirement, to register with SECEX.

Apart from the import license, Brazil requires the following documents for imports: a commercial invoice (including notarized declaration of origin), and a bill of lading or an airway bill. All documents must include the import license number issued by SECEX.

Tariffs

Tariffs or import duties (known in Brazil as *Impostos sobre Importação* or II) are the primary instrument in Brazil for regulating imports. The Harmonized System (HS) is the basis for tariff schedule classification and the compilation of statistical data. Duties are levied ad valorem on the CIF (cost, insurance and freight) value of imports.

Since 1990, Brazil has made substantial progress in reducing tariffs, though rates for many products are still high. Applied tariff rates (*aliquotas*) in Brazil currently range from zero to 32 percent with the exception of some telecommunication goods. Brazil's average applied tariff was 11.8 percent in 2002. The average applied tariff in 1990, by

[28] "27th Annual Product of the Year Awards", Electronic Products, January 2003.
[29] Interview with Antonio Calmon, Director of Semiconductor Programs, Motorola Brasil, August 8, 2002.

contrast, was 32 percent. In general, Brazil maintains a higher average tariff on processed items than on semi-processed goods and raw materials. The United States continues to encourage Brazil to reduce or eliminate tariffs on products of interest to U.S. firms.

On January 1, 1995, Brazil, along with its Mercosul partners Argentina, Paraguay and Uruguay, implemented the Common External Tariff (*Tarifa Externa Comum* or TEC), which covered around 85 percent of Brazil's 9,000 tariff items. Most of the remaining 15 percent, including many capital goods and information technology products, were added to the TEC in 2001. Some remaining tariff items, mainly telecommunications equipment, are to be completely covered under the TEC by 2006. Tariffs for intra-Mercosul trade are to be eliminated by 2006 in order to stimulate trade among the four countries.

Tariffs for intra-Mercosul trade are theoretically limited to a maximum rate of 20 percent. However, Mercosul countries can each maintain a list of about 100 national exceptions to the TEC tariff ceiling of 20 percent Brazil's exceptions list includes products such as shoes and certain consumer electronic goods. In November 1997, after consulting with its Mercosul partners, Brazil implemented an across-the-board three-percentage point increase on all tariffs (inside and outside the TEC), raising the ceiling from 20 to 23 percent. This surcharge is being gradually phased out (over a longer period than initially anticipated), and should be eliminated in 2003.[30] Other Mercosul members have also unilaterally adjusted their tariffs in response to economic crises, and given these developments, the TEC is currently full of exceptions.

Brazilian import duties on electronic components are shown in Table 2-1. Where a range of tariffs is shown, different tariffs are applied to different items at the Harmonized System 6- and 8-digit levels. For example, television cathode ray picture tubes (HS 8540.11 and 8540.12) have a duty of 19.5 percent (providing protection for Brazilian producers), while the tariff for X-ray imaging tubes (HS 8540.20.20, not produced in Brazil) is zero.[31] Importers of electronic components in Brazil must frequently check with authorities to verify current tariff rates, applicable surcharges, exemptions, etc.[32]

Additional Taxes and Fees Assessed on Imports

In addition to duties, imports are subject to a number of taxes and fees in Brazil, which are usually paid during the customs clearance process. There are two taxes that account for the bulk of additional importing costs – (1) the Industrialized Product Tax (known in Brazil as the *Imposto sobre Produto Industrializados*, or IPI), and (2) the Merchandise and Service Circulation Tax (known in Brazil as the "ICMS"). Most taxes are calculated

[30] "Trade Regulations and Standards", Brazil Country Commercial Guide FY 2003, U.S. Department of Commerce, U.S. Commercial Service, October 2002.
[31] Brazil's complete implementation (in Portuguese) of the Mercosul TEC can be downloaded in Microsoft Word or Excel format from MDIC's website: http://www.mdic.gov.br/comext/Deint/tec.htm.
[32] One popular method of keeping current on Brazilian trade regulations is to visit the website of *Aduaneiras*, a consultancy that offers both free and fee-based information, publications, and training at http://www.aduaneiras.com.br/.

on a cumulative basis. In addition to these two taxes, several other taxes and fees apply to imports, as discussed below.

Table 2-1: Electronic Components - 2003 Brazilian Import Duties

HTSUS Number	HTSUS Description	Applied Tariff (percent)
8532	ELECTRICAL CAPACITORS, FIXED, VARIABLE OR ADJUSTABLE (PRE-SET); PARTS THEREOF	16 to 17.5
8533	ELECTRICAL RESISTORS (INCLUDING RHEOSTATS AND POTENTIOMETERS), OTHER THAN HEATING RESISTORS; PARTS THEREOF	17.5
8534	PRINTED CIRCUITS	11.5
US 853669; BR 853690	CONNECTORS: COAXIAL, CYLINDRICAL MULTICONTACT, RACK AND PANEL, PRINTED CIRCUIT, RIBBON OR FLAT CABLE	10 to 17.5
8540	THERMIONIC, COLD CATHODE OR PHOTOCATHODE TUBES (VACUUM, VAPOR OR GAS FILLED TUBES, CATHODE-RAY TUBES, TELEVISION CAMERA TUBES ETC.); PARTS THEREOF	0 to 19.5
8541	DIODES, TRANSISTORS AND SIMILAR DEVICES; PHOTOSENSITIVE SEMICONDUCTOR DEVICES; LIGHT-EMITTING DIODES; MOUNTED PIEZOELECTRIC CRYSTALS; PARTS THEREOF	0 to 13.5
8542	ELECTRONIC INTEGRATED CIRCUITS AND MICROASSEMBLIES; PARTS THEREOF	0 to 13.5

Note: Harmonized System tariff classifications and descriptions from Harmonized Tariff Schedule of the U.S. (2003), except as noted.
Source: Brazil, Ministry of Development, Industry, and Foreign Trade (MDIC), 2003.

Industrialized Product Tax (IPI)

The IPI is a federal tax levied on most domestic and imported manufactured products. It is assessed at the point of sale by the manufacturer or processor in the case of domestically produced goods, and at the point of customs clearance in the case of imports. The IPI tax is not considered a cost for the importer, since the value is credited to the importer. Specifically, when the product is sold to the end user, the importer debits the IPI cost.

The Government of Brazil levies the IPI rate by determining how essential the product may be for the Brazilian end-user. Generally, the IPI tax rate ranges from 0 to 15 %. In the case of imports, the tax is charged on the product's CIF value plus import duty. Often a relatively low import tariff rate carries a lower IPI rate. Conversely, a relatively high import tariff rate carries a correspondingly higher IPI rate. As with value-added taxes in Europe, IPI taxes on products that pass through several stages of processing can be

adjusted to compensate for IPI taxes paid at each stage. Brazilian exports are exempt from the IPI tax.

Merchandise and Service Circulation Tax (ICMS)

The ICMS is a state government value-added tax applicable to both imports and domestic products. The ICMS tax on imports is assessed ad valorem on the sum of CIF value, plus import duty, plus IPI. Although importers have to pay the ICMS to clear the imported product through Customs, it is not necessarily a cost item for the importer, because the amount paid represents a credit to the importer. When the product is sold to the end-user, the importer debits the ICMS, which is included in the final price of the product and is paid by the end-user.

Effectively, the tax is paid only on the added value, since the cost of the tax is generally passed on to the buyer in the price charged for the merchandise. The ICMS tax due to the state government is based on taxes collected on sales by the company, minus the taxes paid in purchasing raw materials and intermediate goods. The ICMS tax is levied on both intrastate and interstate transactions and is assessed on every transfer or movement of merchandise. The rate varies among states; in the state of São Paulo, the rate is 18 percent. On interstate movements, the tax is assessed at the rate applicable in the destination state. Most Brazilian exports are exempt from the ICMS tax.

Additional Miscellaneous Taxes and Fees

There are several additional taxes and fees that add to the cost of importing products into Brazil:

- Warehouse tax: 0.65 percent of CIF for a 15-day period.
- Typical terminal handling charges at Santos' port: $100 per container.
- Merchant marine tax: 25 percent of ocean freight charges (does not apply to air freight).
- Mandatory contribution to customs broker's union: 2.2 percent of CIF with a minimum contribution of $71 and a ceiling set at $160.
- Computerized Foreign Trade Integrated System (SISCOMEX) usage fee: $30.
- Typical cargo transportation fee: $35.

Table 1-2 below presents a hypothetical cost buildup for an imported machine, shipped in a 20-foot container from Miami to the port of Santos in São Paulo state. It illustrates how taxes and fees are calculated and the impact of importing costs on the landed price of the product in the Brazilian market.

Table 2-2: Import Cost Buildup Example

COST ITEM	COST (US$)
FOB price of Product	100,000
Freight	2,400
Insurance (1%)	1,000
CIF Price of Product	103,400
Import Duty Rate: 19% – applied to CIF	19,646
IPI: 5% – applied to CIF + import duty	6,152
ICMS: 18% – applied to CIF + import duty + IPI	23,256
Merchant Marine Tax: 25% of ocean freight cost	600
Warehouse: 0.65% of CIF; or min. US$ 170, max US$ 235	235
Terminal Handling Charges: average US$ 100 per container	100
Contribution to Custom Broker's union 2.2% CIF; or min of US$ 71, max US$ 160	160
Custom Brokerage Fee: average 0.65% of CIF or min US$ 170, max US$ 450	450
SISCOMEX Fee	30
Typical Cargo Transportation charge	35
Typical Bank Costs: 2% of FOB	2,000
FINAL COST	156,064

Source: Trade Regulations and Standards", Brazil Country Commercial Guide FY 2003, U.S. Department of Commerce, U.S. Commercial Service, October 2002.

Customs Regulations

In 1997 the Secretariat of Foreign Trade (SECEX) established a computerized information system to monitor imports and to facilitate customs clearance known as the Foreign Trade Integrated System (SISCOMEX). SISCOMEX has facilitated and reduced the amount of paperwork previously required for importing into Brazil, which, however, can still be burdensome. Brazilian importers must be registered in the Foreign Trade Secretariat's (SECEX) Export and Import Registry and receive a password given by Customs to operate the SISCOMEX. The SISCOMEX has a graphic interface for the composition of electronic import documents and transmits information to a central computer.

Customs Clearance in Brazil can be a time consuming and frustrating process, similar to other countries in the region. In a report issued by ICEX (Instituto de Estudos das Operações de Comércio Exterior), the average customs clearance time in Brazil was the slowest in the Hemisphere (150 hours). Products can get "caught up" in customs because of minor errors or omissions in paperwork.

In the FTAA negotiations, Brazil and the U.S. are working on measures to allow more rapid customs clearance. The Brazilians recognize that many of its ports, loading and unloading as well as customs clearance processes need increased efficiency. To this end, they are also working on a "green line" expedited method of clearance. However, importers should be prepared for the fact that unloading and clearance may take substantially longer than expected.

Import Licenses

As a general rule, Brazilian imports are subject to the "automatic import license" process. This procedure requires that the Brazilian importer submits information concerning each import, including description of the product as well as the harmonized tariff classification number, quantity, value of the shipment, shipping costs, etc. This information will be used for purposes of preparing the "Import Declaration" (locally known as the DI). Subsequently, all information is fed into Brazil's customs computer system known as SISCOMEX. The Brazilian Foreign Trade Secretariat (SECEX) is the government agency responsible for granting import licenses. Certain products and import operations are subject to special requirements, which should also be completed prior to the customs clearance process. Shortly after an importer provides the SISCOMEX system information concerning a specific shipment, SISCOMEX will indicate whether or not a "non-automatic import license" is required.

Standards

Brazilian Federal law established, in1973, the National System of Metrology, Standardization and Industrial Quality, SINMETRO, with participation from public and private organizations. Under this system, the Brazilian Association for Technical Standards (ABNT, *Associação Brasileira de Normas Técnicas*) is the recognized standards organization. INMETRO, a government agency, is the national accreditation body and is responsible for all aspects of metrology. INMETRO is also the operating arm of CONMETRO, the national committee that oversees the work of SINMETRO.

Voluntary Standards

National voluntary standards in all sectors are developed by ABNT. Standards committees are under the umbrella of ABNT but, in some sectors, industry groups hold the secretariat and run the technical committees that develop standards. In some areas, ABNT bases its standards on those of ISO and IEC and on occasion on U.S. standards. ABNT is also a certification organization for both products and systems.

In Brazil, many standards are voluntary. The buyer and seller share responsibility in determining what product standard is applicable. Products conforming to U.S. standards may be fully acceptable. However, products that meet European requirements may be preferred. This preference may be expressed in procurement specifications or in customary design and construction practices.

Given the growing importance of standards and conformity assessment in expanding U.S. exports, a standards expert from the Commerce Department's National Institute of Standards and Technology (NIST) is assigned to work in the Commercial Service, at the U.S. Embassy in Brasília, with regional responsibilities for South American countries.

Standards and Regulations in Mercosul

Brazil, as an active Mercosul member, participates in the development of both Mercosul standards and regulations. The Mercosul Standards Association (AMN) is composed of the standards institutes of Argentina, Brazil, Paraguay and Uruguay and develops and harmonizes voluntary standards. The AMN Executive Secretariat is located in São Paulo. Most of the voluntary standards published deal with steel products, cement and concrete and electrical safety. Several hundred additional standards are in preparation or planned.

International Standards Agreements

Brazil, as a member of the World Trade Organization (WTO), signed the Agreement on Technical Barriers to Trade (TBT), affirming its WTO obligations relative to technical regulations and conformity assessment procedures. ABNT has signed the WTO TBT Code of Good Practice for the Preparation, Adoption and Application of Standards. Responsibilities under the TBT agreement include the establishment of a national inquiry point to serve as a central location for information on standards-related issues, including proposed mandatory regulations. The Brazilian inquiry point is INMETRO in Rio de Janeiro. (See Appendix B for INMETRO contact information.)

CHAPTER 3: MANAUS FREE TRADE ZONE

The Manaus Free Trade Zone (*Zona Franca de Manaus* or ZFM) is the most extensively developed of Brazil's eight free trade zones. Decree Law No. 288 of February 1967 established special incentives for a period of 30 years with the aim of creating an industrial, commercial and agricultural center in the heart of the Brazilian Amazon. The Manaus Free Trade Zone has a 10,000 square kilometer area, which includes the city of Manaus, capital of the State of Amazonas in the northern region of Brazil, and benefits an area that corresponds to 25 percent of the national territory. Unlike the ZFM, which has special incentives for the establishment of industries, the other zones are only free ports for import and export of goods. SUFRAMA (Superintendency of the Manaus Free Trade Zone), an agency subordinate to the Ministry of Development, Industry, and Foreign Trade (MDIC), administers the ZFM.

The Brazilian Federal Constitution of 1988 endorsed the fiscal benefits of the Manaus Free Trade Zone and extended their applicability to the year 2013. Free trade zone status allows goods of foreign origin to enter the Manaus free port without the payment of customs duties or other Federal, State or local import taxes. In addition, the Brazilian industrialized products tax (*Imposto sobre Produtos Industrializados* or IPI) and the merchandise circulation tax (ICMS) on in-country sales are not applied to goods entering the ZFM. With very few exceptions, products imported into the ZFM for processing, re-export or transshipment, which are subsequently shipped to other parts of Brazil, qualify for these tax exemptions. The ICMS tax is imposed on items produced in the ZFM only when they are shipped out of the free trade zone to other areas of Brazil.

Brazilian Law No. 8387 of December 30, 1991, modified the regulations for the Manaus Free Trade Zone by eliminating the previously existing import quota and requiring only that prior notification is made to SUFRAMA. However, in May 1995 the Brazilian Government returned to the import quota system. Commercial invoices and bills of lading for goods imported to the ZFM must be marked "Free Zone of Manaus", and contain one of the following statements: "Zona Franca de Manaus para Consumo" (Manaus Free Zone for Consumption, meaning for use – either as an end-product or as a component of a manufactured product – within the ZFM) or "Zona Franca de Manaus para Re-exportação" (Manaus Free Zone for Re-export). Import licenses issued through the electronic SISCOMEX (Foreign Trade Integrated System) system are subject to additional authorization by SUFRAMA.

Manaus Free Trade Zone importers are allowed to supply foreign goods from their stock in Manaus to other parts of the country regardless of quantity. These goods; however, are subjected to all duties assessed under normal importation. On the other hand, the ICMS tax on such shipments is reduced to only 4 percent (versus the normal ICMS rate of 18 percent on goods shipped to Sao Paulo state, for example).

Basic Productive Process and Fiscal Incentives

The competitive edge of the Manaus Free Trade Zone was seriously reduced by the general lowering of tariff and non-tariff barriers that followed the liberalization of Brazil's informatics policy and the end of market reserve in 1990. In July 1992, the Brazilian Government announced a series of measures to help maintain the attractiveness of the ZFM for manufacturers. The Basic Productive Process (*Processo Produtivo Básico* or PPB) program requires all manufacturers located in the ZFM to define (in consultation with experts at SUFRAMA and MDIC) a series of basic assembly steps that would lead to a given level of national content in their final products, in order to qualify for available fiscal incentives.

To protect the leading industries (e.g., consumer electronics) in the ZFM, the IPI tax was raised by ten percent on competing products that are either imported, or produced in Brazil but outside the free trade zone. The initial list included stereos, televisions, and VCRs; computers and peripherals were not on the list.

Fiscal incentives currently available to manufacturers in the ZFM include:[33]

- Exemption from the industrialized products tax (IPI);
- Exemption from import duties (II) on imported components;
- Reduced tariffs on products shipped from Manaus to the rest of Brazil;
- Reduced merchandise circulation tax (ICMS) on products imported from, or exported to the rest of Brazil;
- Up to ten years exemption from federal income tax; and
- Exemption from import license fees (SISCOMEX fees).

With the revision and renewal of Brazil's Informatics Law in 2001, the PPB program was extended to electronics manufacturers nationwide in the IT hardware and telecommunications equipment sectors, allowing them to qualify for reduced IPI taxes, but not the other benefits available to manufacturers in the ZFM. Fiscal benefits under the new Informatics Law extend to 2013 for qualified manufacturers within the ZFM.

The Manaus Industrial Pole

Electro-electronics manufacturers within the ZFM are clustered under the Manaus Industrial (*Polo Industrial de Manaus* or *PIM*, an administrative designation given to all industrial manufacturing – as distinguished from agricultural and handicraft industry – within the ZFM). Total sales of industrial products from the PIM in 2002 were slightly more than $9 billion, of which about 53 percent were electronic and IT products. The

[33] More detailed information can be obtained on SUFRAMA's website: www.suframa.gov.br.

PIM accounted for about $1 billion in exports in 2002, and directly employed more than 50,000 people in the city of Manaus.

Principal electronic and IT products manufactured in the PIM include color televisions, home audio/video equipment, wired and wireless telephone sets, cellular telephones, mobile audio/video systems, air conditioners, microwave ovens, photocopiers, wristwatches, desktop and notebook computers, computer peripherals, and video monitors (both CRT and LCD). Nearly all of the companies within the PIM have ISO 9000 quality certification.

Sales of electro-electronic goods and IT hardware accounted for an average of 55 percent of total PIM revenues in recent years. Most electronics manufacturing in the PIM is assembly of finished goods, with limited manufacturing of component parts, electronic or otherwise. The fiscal incentives for assembling finished electronic goods in the PIM can add up to a 40 percent cost advantage over similar products made elsewhere in Brazil.[34]

Principal electronics manufacturers located in the PIM include Abril Video, BASF, Brastemp, Cônsul, Dismac, Electrolux, Elgin, Equitel, Evadin, Gradiente, Itautec, LG Electronics, Nokia, Panasonic, Philco, Philips, Samsung, Sanyo, Sony, Thomson Multimedia, Tojo, and Xerox. There are two electronic component manufacturers located in the PIM: AVX and Murata, both of which perform final assembly of ceramic capacitors from imported components. According to a representative of MDIC, many multinational companies have concluded that with the reduction in import duties after 1991, it is more cost-effective to import electronic components into Brazil than to manufacture them locally.[35]

Research, Development, and Design in the ZFM

To improve the competitiveness of the ZFM, officials at SUFRAMA have promoted the establishment of R&D and design centers within the zone, to complement and serve local manufacturing. One such center is the Genius Institute of Technology, created as an independent technology incubator in 1999 with funding from Gradiente, one of Brazil's leading manufacturers of consumer electronics, cellular telephones, and IT hardware, which is headquartered in Manaus. With around 100 employees (70 percent engineers), Genius focuses on identifying and evaluating technological innovations that can be quickly turned into business opportunities.

The Genius Institute receives funding from several multinational electronics and IT hardware manufacturers in Brazil, who are required to devote 1.8 percent of their net annual sales to R&D at independent institutions in Brazil, in order to qualify for reduction in the IPI tax under the Informatics Law. For example, Genius has worked

[34] Interview with Nilton Kornijezuk, former Projects Superintendent, Superintendency of the Manaus Free Trade Zone (SUFRAMA), Ministry of Development, Industry and Foreign Trade (MDIC), August 6, 2002.
[35] Interview with Arnaldo Serrão, Director General for High Tech Industries, Ministry of Development, Industry and Foreign Trade (MDIC), August 5, 2002.

with Motorola to design a FPGA (field-programmable gate array) IC for base band compression/decompression in wireless home theater signal processing.[36]

[36] Interview with Tsen Kang, Technology Manager, Genius Institute of Technology, August 6, 2002.

CHAPTER 4: MARKET OPPORTUNITIES AND ENTRY STRATEGIES

BEST PROSPECTS FOR ELECTRONIC COMPONENTS IN BRAZIL

According to experts in Brazil, the single biggest market for electronic components in Brazil for the next several years will be cellular telephones. Major cell phone manufacturers in Brazil such as Nokia, Samsung, Gradiente, Sony-Ericsson, and LG Electronics are gearing up production to supply the growing markets in Brazil, the South American region, and are even exporting to North America. Increasing interest in VoIP (Voice over Internet Protocol) telephony is expected to spur the growth of VoIP–enabled telephone equipment in Brazil.[37]

In the IT hardware sector, sales of notebook computers, which are assembled in Brazil by IBM, HP-Compaq, Semp Toshiba, and Brazilian firms such as Itautec and HyperDataBrazil (HDB), are expected to grow more rapidly than sales of desktops and servers. Notebook computers are still a relatively small segment of the market in Brazil, however.[38] Brazil is the largest consumer of computer storage systems in Latin America. Brazil's market for computer storage (especially disk systems between 100 and 600 gigabytes) is expected to grow strongly in 2003.[39]

Other end-use markets for electronic components in Brazil that are expected to see growth over the medium term are digital televisions and set-top boxes (Brazilian government agencies are discussing what standard to adopt, but Brazilian TV manufacturers are certain to produce the digital TV sets Brazilians will buy); and automotive electronics (the electronics content of Brazilian-made automobiles is below that of vehicles made in Japan, the U.S. and Europe, but is increasing.)

MARKET ENTRY STRATEGIES

Brazil's manufacturing sectors increasingly make use of the globalized electronics industry supply chain. While there are many small and medium-sized Brazilian electronic product manufacturers whose component purchases extend no further than local distributors, the market as a whole is dominated by multinational (many are global; others serve South American regional markets only) and domestic firms that specify and purchase electronic components on a worldwide basis.

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[37] "Voice Over Internet Protocol", International Market Insight, U.S. Department of Commerce, U.S. Commercial Service, February 27, 2003.
[38] "Notebook Sales", International Market Insight, U.S. Department of Commerce, U.S. Commercial Service, April 2, 2002
[39] "Computer Storage Market is Expected to Grow in Brazil", International Market Insight, U.S. Department of Commerce, U.S. Commercial Service, March 28, 2003.

The Mobile Display Systems (MDS) unit of Philips Components, for example, assembles LCD screens for cellular telephones in a plant in the Manaus Free Trade Zone, in accordance with a *PPB* (Basic Productive Process) plan filed with SUFRAMA. The company has a 60 percent share of the market for cell phone LCD screens in Brazil.[40] Its first customer was Nokia, and Philips Components expects to supply Siemens, Motorola, and its parent company in the future. Philips and Nokia staff in the Netherlands, Finland, and Ireland designed the Nokia LCDs jointly. Initial suppliers of the LCD components (polarized glass substrates, integrated circuits, circuit boards, connectors, molded plastic supports, packaging, etc.) were specified by Philips and Nokia overseas from a list of approved vendors.

MDS's management in Brazil estimates that roughly 40 percent of the value of the final product (i.e., a finished LCD screen, ready to ship to Nokia) is sourced locally, representing mostly non-electronic components such as plastic parts and packaging.[41] In this case, as in others involving multinational firms in Brazil, the choice of electronic component supplier is made at a design, procurement, or headquarters facility overseas. A U.S. supplier, who has identified a potential customer of this type in Brazil, must work back up the supply chain to the point where component specification and purchasing decisions are actually made.

Even smaller Brazilian manufacturers are increasingly plugging in to the global electronics supply chain. Sol Limitada is a small (100 employees) electronics assembler located in Santa Rita do Sapucai, a town in Minas Gerais state. Its primary products – caller ID boxes – are high-volume, low-cost products sold primarily to large telecommunications network carriers, banks, and supermarket chains. Competition is intense on the basis of cost and time-to-market for this product, and Sol relies on its Asian partner to specify and purchase the lowest-cost components, which are then shipped to Sol in kit form.[42] Sol adds a Motorola IC (that was specified by a Brazilian application engineering company under contract to Sol, and sourced through a Brazilian distributor) and software to localize the caller ID/call blocking functions for the Brazilian market. So in this case, one key electronic component is specified and purchased in Brazil, while others are specified and purchased in Asia by a partner company.

The preceding cases illustrate the need for small and medium-sized U.S. suppliers of electronic components to tailor their market entry strategies to the type of customer(s) they plan on selling to and the customer's procurement methods: large manufacturers with global reach, small firms operating in Brazil only, or companies with some mixture of these approaches. To sell in Brazil, U.S. component suppliers must market their products to the real purchasing decision-makers, whether they are in Brazil or not.

[40] Interview with Amauri Mendes Pedro, Factory Manager, Philips Components Mobile Display Systems, August 7, 2002.
[41] Ibid.
[42] Interview with Nelson Shigueru Inoue, Manager, Sol Limitada, August 9, 2002.

Distribution and Sales Channels

All of the customary import channels exist in Brazil: agents, distributors, import houses, trading companies, subsidiaries and branches of foreign firms, among others. Brazilian importers generally do not maintain a large inventory of capital equipment, spare parts, or raw materials, due in part to high importation and storage costs. Recently, due to the creation of additional bonded warehouses, industries that rely heavily on imported components and parts are maintaining larger inventories in bonded warehouses.

Use of Agents and Distributors; Finding a Partner

Although some companies import directly from foreign manufacturers without local representation, in most cases the presence of a local agent or distributor can be very helpful. As in other countries, the selection of an agent requires careful consideration. In general, larger companies will have sales offices throughout Brazil, which would be key for U.S. companies seeking a countrywide presence. Smaller agents may have geographical limitations.

Major international electronic component distributors such as Arrow-Panamericana, Avnet, Bell Microproducts, California Eastern Laboratories, Dependable Component Supply, Future Electronics, Ingram Micro, Premier Farnell, and Richardson operate in Brazil. Some component buyers in smaller cities beyond the major production centers in Brazil's southeast have complained that they are slow to receive up-to-date product information from major distributors, who seem to be focused only on large accounts.[43] While dozens of electronics distributors may be able to provide good coverage on a local basis in Brazil, U.S. electronic component suppliers should be certain that a potential distributor will provide proper support to all customers before signing a deal.

Lawyers recommend that the exporter and representative have a written agreement. The advantages of a written agreement are that the exporter can limit his liability in case of any product defects, can define the type of warranty, protect his trademark and better ensure payments.

The U.S. company and the local agent or distributor must negotiate the type of representation, whether it is exclusive and whether performance targets are included. Contract clauses are freely negotiated between the foreign and local firms; however, U.S. companies should consult with a Brazilian law firm before signing any type of agreement with local firms to avoid legal problems in the future. Under Brazilian law, an agency agreement entitles an agent to receive a termination amount equivalent to at least 1/12 of all commissions received throughout the contract.

[43] Interview with Wellington Fontes, Manager, Avalex Electronics, August 9, 2002. Avalex is located in Santa Rita de Sapucai, Minas Gerais state.

E-Commerce

Brazil has the most advanced Internet and e-commerce environment in Latin America, with steady growth in recent years. In 2001 electronic business transactions between companies (B2B e-commerce) in Brazil represented $ 3.9 billion. In three years, this amount is expected to surpass $21 billion. Brazilian electrical and electronics engineers are accustomed to using the Internet to gather technical information and specifications from electronic component supplier websites, both distributors and manufacturers. The use of B2B e-commerce for electronic component purchases is fairly common among the larger manufacturers (especially the multinationals) in all of Brazil's electronic component end-use industry sectors, but lags somewhat among smaller domestic Brazilian manufacturers.

E-Government

Brazil has been a leader in developing effective and widely available e-government services. Part of a nationwide Information Society initiative (to spread the benefits of the internet throughout all sectors of Brazilian society) launched by the Ministry of Science and Technology in 2000, Brazil's e-government efforts have achieved excellent results. Currently, 75 percent of all Brazilian government services are available online through the internet, including the payment of duties and taxes such as the federal income tax; federal purchasing transactions; and the government's official gazette.

Direct Sales

U.S. exporters may sell directly to Brazilian consumers or distributors. However, different Brazilian customs rules apply to these types of transactions. U.S. exporters can sell directly to Brazilian distributors or trading companies, but only those that are registered with the Secretariat of Foreign Trade (SECEX) of the Ministry of Development, Industry and Foreign Trade (MDIC). With respect to sales to end-users or consumers, U.S. exporters may ship the goods directly to the customer, observing the following regulations:

- Shipments under $50 enter Brazil duty free;
- Shipments over $50 up to $500 are subject to a flat 60 percent import tariff rate (except for pharmaceutical drugs and books which enter duty free regardless of the value of the shipment);
- Merchandise imported under this mechanism cannot be resold locally; and
- All shipments valued above $500 imported by Brazilian companies must be registered with SECEX. Also, in these cases the product specific import tariff rate will apply rather than the flat 60 percent rate applied to shipments valued under $500 described above.

Joint Ventures/Licensing

Establishment of joint ventures is a common practice in Brazil. A major motivation for joint ventures is to pair foreign firms with Brazilian partners to compete in segments of the government procurement market or in other markets subject to government regulation, such as telecommunications and energy. Usually, joint ventures are established through two main legal formats, "sociedades anônimas" or "limitadas," which are legally similar to corporations and limited partnerships companies in the U.S.

Licensing agreements are common forms of accessing the Brazilian market. Use of a competent local attorney in structuring such an arrangement is advised. All licensing and technical assistance agreements, including trademark licenses, must be registered with the Brazilian Industrial Property Institute (INPI). (See Appendix B: Useful Contacts in Brazil.)

Steps for Establishing an Office

Setting up a company or acquiring an existing entity are both options for investing in Brazil. Setting up new companies is relatively easy and inexpensive. Acquisitions of existing companies are monitored by the Central Bank. Corporations (sociedades anônimas) and limited liability companies (limitadas) are relatively easy to form. Local law requires that foreign capital be registered with the Central Bank. Failure to do so may cause serious problems related to access to foreign exchange, capital repatriation, and profit remittance. For further information contact the Secretariat of Foreign Trade – SECEX, or the Brazilian Consulate in New York. (See Appendix A: Useful Contacts in the U.S.).

Selling Factors/Techniques

Electronic component sales are typically driven by price, functionality, and quality factors. Generally, U.S. goods are perceived as high quality products, but competition from component producers in Europe and Asia is intense. The opening of the market in the early nineties upgraded considerably the quality of locally produced electronic components, as well, although Brazilian component manufacturing is very limited. Other important aspects include financing, delivery, after sales support and customer service. To be successful in Brazil, U.S. companies should also consider adapting products to local technical requirements where necessary, and providing technical support (spec sheets, applications assistance, etc.) in Portuguese.

Advertising and Trade Promotion

Advertising in specialized trade and technical publications is a useful (but not essential) tool for marketing electronic components in Brazil. Many Brazilian electronic engineers are accustomed to reading Internet versions of U.S. electronics trade publications and/or searching component manufacturer's websites for required information. The most important specialized publication serving the electronic components market in Brazil is Noticiário de Produtos Eletrônicos (known as NPE-Brazil, or in English, Electronic

Products News). With a controlled monthly distribution of 17,000 copies, NPE-Brazil is aimed at qualified electrical and electronics engineers and managers in the informatics, telecommunications, automation, industrial controls, aeronautics, and consumer electronics sectors.

NPE-Brazil is published in Portuguese by TL/Hearst Publications (a joint venture with U.S.-based Thomas Publishing Company and Grupo Lund de Editoras Associadas, based in Brazil). TL/Hearst Publications also publishes EEM Brasil, the Brazilian version of the popular Electronic Engineers Master (EEM) catalog published in the United States.[44]

Participation in Brazilian trade fairs is another important marketing tool for increasing product exposure in Brazil and making business contacts that can lead to sales. Appendix C provides information on several trade events in the electro-electronics sector. The most important of these for the electronic components market is Electronic Americas, held annually in São Paulo.

Product Pricing

Due to very high local interest rates, often the price of products sold in the domestic market reflects financing costs. Therefore, price negotiations are intimately related to the supplier's payment terms. A company may select a supplier whose prices are higher than the competition, based solely on payment terms.

Tax burden in Brazil on both imported and locally manufactured products is the heaviest in Latin America and higher than in the United States. In order to be competitive in Brazil, some companies are reducing profit margins and implementing efficient logistics systems to reduce costs. Foreign suppliers should carefully calculate import-related costs, because in Brazil, such costs are generally high. In some cases they are so high that a simple calculation may indicate that there is no way that the product can effectively compete with a locally made similar product.

Protecting your Products from IPR Infringement

Brazil is a signatory to the Paris, Bern, and Universal Copyright conventions on intellectual property rights (IPR) protection, the WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), and the Patent Cooperation Treaty (PCT). Brazil is also a member of the World Intellectual Property Organization (WIPO). The Brazilian Institute of Industrial Property is the government entity in charge of industrial property rights, the formal examination of applications for trademark and advertising slogan registration, and the issuance of letters of patent.

Need for a Local Attorney

Local assistance can be very useful when entering, consolidating or expanding in the Brazilian market. Understanding the legal aspects of the Brazilian market is extremely

[44] Get more information at Thomas International Publishing Company's web site: http://www.tipco.com/.

important. To operate in accordance with Brazilian laws, a firm may need to hire a local lawyer, qualified to act on behalf of the foreign company. Without the appropriate legal assistance, investors might be subject to several liabilities, which range from a denial of an appropriate authorization to operate in the Brazilian market to facing obstacles with a Brazilian partner, causing eventual losses to the foreign company.

Local lawyers can assist with minimizing a company's tax burden by taking advantage of tax incentives provided by local, state or federal levels. Lawyers can also explain aspects related to real estate, labor, intellectual property, and antitrust laws, all of which can be complicated in Brazil. Local legal council may also provide expertise in negotiating with local partners and customers.

Performing Due Diligence/Checking Bona Fides Of Banks/Agents/Customer

Because laws regulating commercial agreements and commercial transactions vary from country to country, all U.S. companies should conduct legal and financial due diligence before completing a commercial transaction or formalizing any agreement outside the United States. In Brazil, the Commercial Service can provide U.S. companies with lists of well-known and respected credit rating companies and law firms to assist U.S. firms to conduct credit checks on potential customers or to obtain important legal advice before signing commercial agreements.

Detailed due diligence on a target company based on all documentation provided by the Brazilian company and field investigation by a law firm is crucial when trying to avoid potential problems in the future. In the event that the relationship with the Brazilian company is strictly commercial, the U.S. company may not have access to the private and confidential documentation and information, and must rely only on public investigations regarding the legal and financial situation of the Brazilian company. A U.S. company should check for compliance with Brazilian corporate tax laws. The Federal Taxpayer Registry Number of the company can help obtain information that attests to the firm's compliance with tax requirements and other public and third party interests.

CHAPTER 5: THE ROLE OF THE U.S. DEPARTMENT OF COMMERCE

INTERNATIONAL TRADE ADMINISTRATION

The mission of the U.S. Department of Commerce's International Trade Administration (ITA) is "to create economic opportunity for U.S. workers and firms by promoting international trade, opening foreign markets, ensuring compliance with trade laws and agreements, and supporting U.S. commercial interests at home and abroad. Trade Development (TD) and the U.S. Commercial Service (USCS) divisions of ITA are responsible for export promotion. For more information on ITA, visit http://www.trade.gov.

Export.gov Web site

For more information on how the U.S. Government assists U.S. businesses export, visit http://www.export.gov. Export.gov is a multi-agency trade portal that brings together U.S. Government export-related information under one easy-to-use web site, organized according to the intended needs of exporters, especially small businesses. Whether a company is exploring the possibility of exporting, searching for trade partners, seeking information on new markets, or dealing with trade problems, this web site can help. Additionally, the site has easy links to information on advocacy, trade events, trade statistics, tariffs and taxes, market research, export documentation, financing export transactions, and much more.

TRADE DEVELOPMENT

ITA's Trade Development (TD) unit is the Commerce Department's link to U.S. industry. TD provides industry and market analysis, export promotion services, advocacy for U.S. companies bidding on foreign government contracts, and support for trade negotiations. TD offers an array of services to help small businesses increase their export potential.

Industry Expertise

TD's industry expertise encompasses the majority of U.S. business sectors. Industry sector specialists provide U.S. firms with: information and analysis of domestic and foreign industry trends; foreign market conditions and opportunities for specific products or services; information on foreign market tariffs and non-tariff barriers and regulations; advocacy assistance; business and cultural practices; and advice on business and cultural practices.

Trade Negotiations and Agreements

TD's industry expertise is the primary source used in trade negotiations by the President of the United States and the Office of the U.S. Trade Representative (USTR). TD's close

interaction with industry, understanding of restrictions on market access, product standards and testing requirements, and knowledge of trade data assist negotiators in the drafting of trade agreements with maximum benefits for U.S. firms. Additionally, TD industry experts help monitor and enforce foreign governments' compliance with trade commitments through collaboration with other ITA units, including the USCS and Market Access and Compliance (MAC) regional desk officers, as well as USTR.

TD'S INFORMATION TECHNOLOGY INDUSTRIES SECTOR

TD's Deputy Assistant Secretary for Information Technology Industries (ITI) oversees the activities of three offices focused on high-tech industry: the Office of Information Technologies and Electronic Commerce (OITEC); the Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI); and the Office of Telecommunications Technologies (OTT).

Office of Information Technologies and Electronic Commerce

OITEC focuses on the following IT industry segments: computers and peripherals; software; networking equipment; and Internet and e-commerce technologies. The office also provides general trade and policy analysis and research, including analyzing foreign countries' e-commerce laws and initiatives.

OITEC actively supports U.S. IT firms' efforts to expand their business overseas. Industry specialists track the growth and competitiveness of domestic and foreign IT industries; counsel U.S. businesses on overseas market conditions and the practical aspects of exporting their products; identify market barriers as they affect IT exports; and work closely with USTR to negotiate the removal of such barriers. The office's export promotion activities include trade missions, trade fairs, catalog shows, and technical seminars that introduce U.S. businesses to end-users and potential trading partners located overseas.

OITEC also fosters a favorable policy environment by focusing on keeping both the Internet and foreign markets open to private sector-driven global growth. OITEC participates in various forums such as the U.S. Government's interagency working group on electronic commerce, the Organization for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), the European Union (EU), the Asia Pacific Economic Cooperation forum (APEC), the U.S.-Japan information technology working group under the Regulatory Reform Initiative, the Free Trade Agreement of the Americas (FTAA), and other free trade agreements with Australia, Chile, and Singapore. The office oversees the Administration's E-Commerce Joint Statements with other governments, manages the IFAC-4 E-Commerce advisory committee, and participates in formal as well as informal policy dialogues with other nations.

Industry specialists compile and disseminate detailed information and analyses on the IT industry sectors they cover, contribute to the annual Department of Commerce *U.S. Industry & Trade Outlook* publication that describes current and future IT industry and market trends on a domestic and global basis and prepare with other ITI offices ExportIT

reports on key foreign markets. These specialists also work to update and expand the export.gov/infotech web site with information on foreign markets and regulations, including tariff and tax rates for IT products, U.S. and foreign policies that affect IT exports, upcoming trade events, and additional government and private sector resources. The office also distributes a free electronic newsletter highlighting trade leads, partnering opportunities, and trade events.

To obtain more information, including OITEC international trade specialists and the regions/industry sectors they cover, contact:

Office of Information Technologies and Electronic Commerce (OITEC)
U.S. Department of Commerce, Room 2003
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0216
FAX: (202) 482-501-2548
Internet: http://www.export.gov/infotech

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)

OMMI covers electronic components such as electron tubes, printed circuit boards, semiconductors, capacitors, resistors, transformers, and connectors, as well as semiconductor manufacturing equipment. Additionally, the office supports several industry sectors with high IT content, including medical and dental equipment and electro medical apparatus, process control instruments, laboratory analytical instruments, optical instruments, and instruments used to measure electricity and electrical signals.

OMMI's primary mission is to promote exports and increase the international competitiveness of U.S. industry working in these sectors. It counsels U.S. firms on foreign market conditions and the specifics of exporting, using information from overseas USCS offices and a wide range of industry-related resources. OMMI staff work with private sector and Department of Commerce colleagues to develop trade missions, trade fairs, catalog shows, seminars, and other trade events that offer direct contact with foreign government officials, industry representatives, and end-users. In cooperation with other parts of ITA and U.S. government agencies, the office participates in trade negotiations and supports USTR efforts to eliminate or reduce regulatory and other types of barriers that hinder trade and investment in these industries.

OMMI staff gathers and disseminates market research and statistical analyses of the domestic and international microelectronics, medical equipment and instrumentation industries. Trade and industry reports, trade statistics, information on foreign markets and regulations, U.S. and foreign policies that affect exports, trade events, and links to additional government and private sector resources are available on the export.gov/infotech web site.

To obtain more information, including OMMI international trade specialists and the regions/industry sectors they cover, contact:

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)
U.S. Department of Commerce, Room 1015
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-2470
FAX: (202) 482-0975
Internet: http://www.export.gov/infotech

Office of Telecommunications Technologies

OTT's mission is to support the growth and competitiveness of the U.S. telecommunications equipment and services industries in foreign markets.

OTT provides business counseling to U.S. telecommunications firms seeking to enter or expand in specific markets by developing and disseminating information on the telecommunications market in foreign countries based upon information from US&FCS and a wide range of other industry resources. The office promotes international trade and investment opportunities for the U.S. telecommunications industry by sponsoring events that offer direct contact with foreign government and industry officials. OTT, in conjunction with sister ITA units and government agencies, acts as an intermediary between U.S. firms and foreign governments to provide advocacy on behalf of U.S. companies bidding on public projects abroad. It supports the USTR in trade negotiations to open foreign markets for U.S. telecommunications equipment and services exports. Additionally, OTT monitors both bilateral and multilateral telecommunications agreements and provides input to the USTR regarding compliance by foreign countries.

OTT conducts market research and statistical analysis of the domestic and international telecommunications industry and posts a variety of industry information to the export.gov/infotech web site. The office distributes complimentary electronic newsletters that deliver up-to-date information on foreign market opportunities and changes affecting the industry. OTT contributes the telecommunications chapters featured in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OTT international trade specialists and the regions/industry sectors they cover, contact:

Office of Telecommunications Technologies (OTT)
U.S. Department of Commerce, Room 4324
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-4466
FAX: (202) 482-5834
Internet: http://www.export.gov/infotech

OTHER TRADE DEVELOPMENT OFFICES AND PROGRAMS

Trade Information Center

TD's Trade Information Center (TIC) is an excellent first stop for new-to-export companies seeking export assistance from the federal government. TIC Trade Specialists: 1) advise exporters on how to find and use government programs; 2) guide businesses through the export process; 3) provide country and regional business counseling, foreign import tariff/tax rates and customs procedures, trade opportunities and best prospects for U.S. companies, distribution channels, standards, and common commercial difficulties; 4) provide information on domestic and overseas trade events; and 5) provide sources of public and private sector export financing. TIC trade specialists also assist exporters in accessing reports and statistics from the computerized National Trade Data Bank and direct them to state and local trade organizations that provide export assistance. To contact the TIC, call 1-800-USA-TRADE; FAX (202) 482-4473; e-mail: TIC@ita.doc.gov; or visit the Web site http://tradeinfo.doc.gov.

Advocacy Center

The Advocacy Center (AC) aims to ensure that U.S. companies of all sizes are treated fairly and evaluated on the technical and commercial merits of their proposals for foreign government tenders. Advocacy assistance is wide and varied, but often involves U.S. companies that must deal with foreign governments or government-owned corporations. Assistance can include the visit of a high-ranking U.S. government official to a key foreign official; direct support by U.S. officials (including Commerce and State Department officers) stationed overseas at the U.S. Embassies and Consulates; or, coordinated action by U.S. government agencies to provide maximum assistance. The AC is at the core of the President's National Export Strategy and its goal is to ensure opportunities for American companies. Since its creation in 1993, the AC has helped hundreds of U.S. companies in various industry sectors win foreign government contracts valued at more than $2.5 billion. For more information, visit the AC's Web site: http://www.trade.gov/advocacy.

Trade Missions And Events

Working in coordination with the private sector and the US&FCS, TD industry analysts help plan, organize, and execute trade events, including high-level executive missions with the Secretary or Under Secretary of Commerce. Additionally, there are a host of trade conferences and shows held throughout the U.S. and abroad. A searchable list of all ITA trade events can be found at http://www.usatrade.gov.

Small Business Program

ITA's Small Business Program is the focal point for trade policy issues concerning SMEs. The program brings the small business point of view to international trade policy discussions, primarily through the Industry Sector Advisory Committees (ISAC) on

Small and Minority Business for Trade Policy Matters (ISAC 14), the only advisory committee to the U.S. Government on small and minority business export concerns. The Small Business Program also provides outreach to and plans events for small, women-owned, and minority-owned firms.

Additional information can be found on the Industry Consultations Program's Web site at http://www.trade.gov/td/icp, or by contacting the:

Industry Consultations Program
U.S. Department of Commerce
Tel: 202-482-3268
FAX: 202-482-4452
E-mail: Trade_Advisory_Center@ita.doc.gov

Industry Consultations Program

Industry has a voice in U.S. trade policy formulation through the Industry Consultations Program (ICP). The ICP includes more than 500 members and is comprised of seventeen (17) Industry Sector Advisory Committees (ISACs) on Trade Policy Matters and three (3) Industry Functional Committees (IFACs) on Trade Policy Matters. The ISACs represent industry sectors of the U.S. economy, including IT and small and minority businesses. The IFACs address crosscutting issues affecting all industry sectors - customs, standards, intellectual property rights, and e-commerce. Advisors on these committees have direct access to trade policymakers at the Department of Commerce and the USTR and help develop their industry's positions on U.S. trade policy and negotiation objectives.

Additional information can be found on the ICP's web site at http://www.trade.gov/td/icp, or by contacting the:

Industry Consultations Program
U.S. Department of Commerce
Tel: 202-482-3268
FAX: 202-482-4452
E-mail: Trade_Advisory_Center@ita.doc.gov.

Export Trading Companies and Trade Intermediaries

The Office of Export Trading Company Affairs (OETCA) promotes the formation and use of export trade intermediaries and the development of long-term joint export ventures by U.S. firms. OETCA administers two programs available to all U.S. exporters. The Export Trade Certificate of Review Program provides antitrust protection to U.S. firms for collaborative export activities. The MyExports.com™ program is designed to help U.S. producers find export partners and locate export companies, freight forwarders, and other service firms that can facilitate export business. For more information, visit http://www.trade.gov/oetca and http://www.myexports.com.

Market Development Cooperator Program

MDCP is a competitive matching grants program that builds public-private partnerships by providing federal assistance to nonprofit export multipliers such as states, trade associations, chambers of commerce, world trade centers, and small business development centers. These multipliers are particularly effective in reaching and assisting small- and medium-sized enterprises (SMEs). Applicants use their own creativity to design projects that will help SMEs to enter, expand, or maintain market share in targeted overseas markets. MDCP awards help underwrite the start-up costs of exciting new export marketing ventures which these groups are often reluctant to undertake without federal government support. For more information, visit http://www.trade.gov/mdcp.

THE U.S. COMMERCIAL SERVICE (USCS)

The USCS, one of TD's sister units in ITA, assists U.S. firms in realizing their export potential by providing: 1) exporting advice; 2) information on overseas markets; 3) assistance in identifying international trading partners; 4) support for trade events; and 5) advocacy, among other services. USCS trade specialists work in more than 100 Export Assistance Centers across the United States and in more than 150 overseas posts, in approximately 80 foreign countries, which combined represent more than 96 percent of the world market for exports. Lists of trade specialists by U.S. city or country can be found at http://www.usatrade.gov.

International Operations

Overseas USCS offices are housed in U.S. Embassies and Consulates where Commercial Officers serve as intermediaries to foreign markets. USCS staff members are industry-focused and offer numerous products and services that assist U.S. companies to enter or expand their sales in a particular market. The main activities of these offices include establishing key industry and foreign government contacts, helping match U.S. suppliers with local buyers, and organizing or facilitating trade events. Contact information for USCS trade specialists who cover the IT, telecommunications, and e-commerce sectors in Brazil is listed in the appendices of this report. The website of the USCS in Brazil is: http://www.FocusBrazil.org.br.

Domestic Operations

The USCS provides export counseling and marketing assistance to the U.S. business community through its 1,800 trade experts working in more than 100 domestic Export Assistance Centers (USEACs) located across the country. USEAC staff work closely with their USCS colleagues stationed overseas to match U.S. suppliers with foreign buyers. USEACs help firms enter new markets and increase market share by identifying the best markets for their products and services, and developing an effective market entry strategy informed by input generated in the overseas offices. They also advise clients on practical exporting matters such as distribution channels, programs and services, and

relevant trade shows and missions, as well as assisting with trade finance programs available through federal, state, and local entities.

USCS Services

Market Research

Industry Sector Analysis (ISA)

ISAs are structured market research reports produced on location in leading overseas markets and cover market size and outlook, with competitive and end-user analysis for the selected industry sector. ISAs are available through the U.S. Commercial Service's Web site http://www.usatrade.gov and are a component of the National Trade Data Bank (NTDB) subscription service detailed below.

International Marketing Insight (IMI)

IMIs are written by overseas and multilateral development bank staff and cover information on the dynamics of a particular industry sector in one foreign market. IMIs are available through the U.S. Commercial Service's Web site (http://www.usatrade.gov) and are a component of the NTDB subscription service detailed below.

Country Commercial Guide (CCG)

CCGs are prepared annually by U.S. Embassy staff and contain information on the business and economic situation of foreign countries and the political climate as it affects U.S. business. Each CCG contains the same chapters, covering topics such as marketing U.S. products, foreign trade regulations and standards, investment climate, business travel, and in-country contact information. CCGs are available through the U.S. Commercial Service's Web site (http://www.usatrade.gov) and are also a component of the NTDB subscription service noted below.

National Trade Data Bank (NTDB)

The U.S. Commercial Service contributes to the NTDB, a one-stop source of international documents, including market research reports, trade leads and contacts, statistical trade data collected by federal agencies that contains more than 200,000 trade-related information, and Country Commercial Guides. The NTDB subscription may be purchased on CD-ROM, accessed through the Internet (http://www.stat-usa.gov), or is accessible free of charge at federal depository libraries. Call 1-800-STAT-USA for more information and ordering instructions.

Export Prospects

Platinum Key Service

The Platinum Key offers customized, long-term assistance to U.S. companies seeking to enter a new market, win a contract, lower a trade barrier, or resolve complex issues. Fees depend on the scope of work.

Gold Key Service

The Gold Key is a custom-tailored service for U.S. firms planning to visit a country. This service provides assistance in developing a sound market strategy, orientation briefings, introductions to pre-screened potential partners, interpreters for meetings, and effective follow-up planning. The fees range from $150 to $700 (for the first day) per country.

Flexible Market Research (FMR)

FMR provides customized responses to questions and issues related to a client's product or service. Available on a quick turnaround basis, the research addresses overall marketability of the product, key competitors, and price of comparable products, customary distribution and promotion practices, trade barriers, potential business partners, and more. Fees vary according to scope of work.

International Partner Search (IPS)

IPS provides a customized search that helps identify well-matched agents, distributors, licensees and strategic alliance partners. A fee of $600 per country is charged.

BuyUSA.com

BuyUSA.com (http://www.buyusa.com) is a unique public/private partnership between the U.S. Commercial Service and IBM. It established a one-stop international marketplace for U.S. small to medium-sized enterprises to identify potential international partners and transact business on-line. The BuyUSA.com e-marketplace includes managed/targeted trade leads, on-line catalogs, automated searching and sourcing, financing, logistics, currency conversion, due diligence, landed-cost calculation, and tariff and duty calculation. BuyUSA.com is the only Web site of its kind to combine an on-line interface with a worldwide network of one-on-one trade counselors.

Export Promotion

International Buyer Program (IBP)

IBP, supporting 28 major domestic trade exhibitions annually, undertakes for each show a worldwide promotional campaign aimed at maximizing international attendance through work with the overseas network of Commercial Service and Embassy offices. Qualified buyers and prospective distributors, many brought as part of delegations led by overseas commercial staff, are assisted in meeting with interested exhibiting firms and provided services aimed at helping them find new suppliers and trade partners. Each show features an International Business Center at which export counseling,

matchmaking, interpreter and other business services are provided to international visitors and exhibitors.

Video Conferencing Programs

The "Virtual Matchmaker," "Video Gold Key," and "Video Market Briefing" programs provide an effective tool to help U.S. companies assess an overseas market or overseas business contacts before venturing abroad to close a deal. Companies can use these cost-effective video services to interview international contacts, get a briefing from overseas industry specialists on prospects and opportunities, or develop a customized solution to international business needs.

Matchmaker Trade Delegations

The Matchmaker Trade Delegation Program is designed to match small to medium-sized new-to-market or new-to-export U.S. firms with qualified business contacts abroad. Each mission targets major markets in two or three countries that have strong potential for U.S. goods and services. Delegation members travel to each country and benefit from export counseling, interpreter service and logistics support, market research, in-depth market briefings, and a personalized itinerary of business appointments screened by commercial specialists at U.S. Embassies and Consulates.

Product Literature Centers

This program showcases U.S. company product literature through exhibits in international trade shows held in both mature and emerging markets. The Product Literature Center is a low cost, efficient way for small and medium-sized firms to get worldwide sales leads in their particular industry. A Commerce Department industry/international specialist or the U.S. Embassy operates Product Literature Centers. Visitors to Product Literature Centers are required to register and may take company literature with them. All sales leads are sent directly to the Product Literature Center participant.

Multi-State Catalog Exhibitions Program

This program showcases U.S. company product literature in fast-growing markets within a geographic region. The U.S. Department of Commerce and representatives from state development agencies present product literature to hundreds of interested business prospects abroad and send the trade leads directly to U.S. participants.

Commercial News USA (CNUSA)

CNUSA, a catalog-magazine containing advertisements of U.S. products, is published 12 times per year by the Commercial Service through its private-sector partner, ABP International, to promote U.S. products and services to more than 400,000 potential buyers and partners in 145 countries.

APPENDICES

APPENDIX A: USEFUL CONTACTS IN THE U.S.

Brazilian Embassy – Washington, DC
Commercial Section
3006 Massachusetts Avenue, N.W.
Washington, D.C. 20008
Tel: (202) 238-2766
Fax: (202) 238-2827
Email: trade@brasilemb.org
Web address: http://www.brasilemb.org

Brazilian Consulate General – Los Angeles
8484 Wilshire Boulevard, Suites 711/730
Beverly Hills, CA 90211-3216
Tel: (323) 651-2664
Fax: (323) 652-1274
Email: braziltrade@secomla.com
Web address: http://www.brazilian-consulate.org

Brazilian Consulate General – New York
Brazilian Government Trade Bureau
1185 Avenue of the Americas, 21st Floor
New York, NY 10036
Tel: (212) 827-0976
Fax: (212) 827 0225
Email: trade@brazilny.org
Web address: http://www.brazilny.org

U.S. DEPARTMENT OF COMMERCE
INTERNATIONAL TRADE ADMINISTRATION

Trade Development

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)
14th Street & Constitution Avenue, N.W., Room 1015
Washington D.C. 20230
Tel: (202) 482-2470
Fax: (202) 482-0975
Web Address: http://www.export.gov/infotech/

Contacts:

Robin Roark, Senior International Trade Specialist
Microelectronics/Semiconductors; China, ROW except India, Japan, South Korea.

Tel: (202) 482-3090
Fax: (202) 482-0975
Email: robin_roark@ita.doc.gov

Robert Blankenbaker, International Trade Specialist
Semiconductors; India, Japan, South Korea
Tel: (202) 482-3411
Fax: (202) 482-0975
Email: robert_blankenbaker@ita.doc.gov

Judee Mussehl-Aziz, International Trade Specialist
Printed Circuit Boards; China, ROW
Tel: (202) 482-0402
Fax: (202) 482-0975
Email: judee_mussehl-aziz@ita.doc.gov

Dorothea Blouin, International Trade Specialist
Other Electronic Components, Electronic Manufacturing Services, Semiconductor Manufacturing Equipment
Tel: (202) 482-1333
Fax: (202) 482-0975
Email: dorothea_blouin@ita.doc.gov

Marlene Ruffin, International Trade Specialist
Microelectronics Trade Promotion
Tel: (202) 482-0570
Fax: (202) 482-0975
Email: marlene_ruffin@ita.doc.gov

U.S.-BASED TRADE ASSOCIATIONS FOR ELECTRONIC COMPONENTS AND INFORMATION TECHNOLOGY HARDWARE

American Electronics Association (AeA)
William T. Archey, President
1225 Eye Street, NW, Suite 950
Washington, DC 20005
Tel: (202) 682-9110
Fax: (202) 682-9111
Email: Bill_Archey@aeanet.org
Web address: http://www.aeanet.org

Brazilian American Chamber of Commerce, Inc.
509 Madison Avenue, Suite 304
New York, NY 10022
Tel: (212) 751-4691
Fax: (212) 751-7692

Email: info@brazilcham.com
Web address: http://www.brazilcham.com

Electronic Components, Assemblies & Materials Association (ECA)
Robert Willis, President
2500 Wilson Boulevard
Arlington, VA 22201-3834
Tel: 703.907.8021
Fax: 703.875.8908
Email: rwillis@ecaus.org
Web address: http://www.ec-central.org

Information Technology Association of America (ITAA)
Harris Miller, President
1616 North Fort Myer Drive, Suite 1300
Arlington, VA 22209
Tel: (703) 522-5055
Fax: (703) 525-2279
Email: ccayo@itaa.org
Web address: http://www.itaa.org

Information Technology Industry Council (ITIC)
Rhett B. Dawson, President
1250 Eye Street, NW, Suite 200
Washington, DC 20005
Tel: (202) 737-8888
Fax: (202) 638-4922
Email: rdawson@itic.nw.dc.us
Web address: http://www.itic.org

IPC – Association Connecting Electronics Industries
Denny McGuirk, President
2215 Sanders Road
Northbrook, IL 60062
Tel: 847-509-9700
Fax: 847-509-9798
Email: mcgude@ipc.org
Web address: http://www.ipc.org

Semiconductor Industry Association (SIA)
George Scalise, President
181 Metro Drive, Suite 450
San Jose, CA 95110
Tel: (408) 436-6600
Fax: (408) 436-6646
Email: gscalise@sia-online.org

Web address: http://www.sia-online.org/

Semiconductor Equipment and Materials International (SEMI)
Stanley Myers, President and CEO
3081 Zanker Road
San Jose, CA 95134 USA
Tel: 408.943.6900
Fax: 408.428.9600
Email: smyers@semi.org
Web address: http://www.semi.org

Telecommunications Industry Association (TIA)
Jason Leuck, Director, International Affairs
1300 Pennsylvania Avenue, NW, Suite 350
Washington, DC 20004
Tel: (202) 383-1493
Fax: (202) 383-1495
E-mail: jleuck@tia.eia.org
Web address: http://www.tiãonline.org

APPENDIX B: USEFUL CONTACTS IN BRAZIL

BRAZILIAN GOVERNMENT

Ministry of Development, Industry, and Foreign Trade
Ministério do Desenvolvimento, Indústria e Comércio Exterior (MDIC)
Esplanada dos Ministérios, Bloco J
70056-900 Brasília, DF
Minister Luiz Fernando Furlan
Tel: 55/61/329-7001
Fax: 55/61/329-7230
Web address: http://www.mdic.gov.br

Brazilian Industrial Property Institute
Instituto Nacional da Propriedade Industrial (INPI)
Praça Mauá 7, 18th Floor, Centro
20083-900 Rio de Janeiro, RJ
President: José Graça Aranha
Tel: 55/21/2224-3121
Fax: 55/21/2263- 2539
Web address: http://www.inpi.gov.br

National Bank of Economic Social Development
Banco Nacional de Desenvolvimento Econômico e Social (BNDES)
Avenida República do Chile, 100, 19th Floor
20139-900 Rio de Janeiro, RJ
President: Carlos Lessa
Tel: 55/21/2277-7001
Fax: 55/21/2533-1538
Email: presidencia@bndes.gov.br
Web address: http://www.bndes.gov.br

Secretariat of Foreign Trade
Secretaria de Comércio Exterior (SECEX)
Esplanada dos Ministérios, Bloco J, 8th floor, Sala 814
70056-900 Brasília, DF
Secretary: Ivan Ramalho
Tel: 55/61/329-7077
Fax: 55/61/329- 7075
Web address: http://www.mdic.gov.br

Superintendency of the Manaus Free Trade Zone
Superintendência da Zona Franca de Manaus (SUFRAMA)
Avenida Ministro João Gonçalves de Souza, s/n, Distrito Industrial

69075-770 Manaus, AM
Superintendent: Flavia Skrobot Barbosa Grosso
Tel: 55/92/614-7075
Fax: 55/92/237-6549
Email: super@suframa.gov.br
Web address: http://www.suframa.gov.br

Ministry of Finance
Ministério da Fazenda
Esplanada dos Ministérios, Bloco P, 4th Floor
70048-900 Brasília, DF
Minister: Antônio Palocci
Tel: 55/61/322-2438
Fax: 55/61/412-1721
Web address: http://www.fazenda.gov.br

Brazilian Central Bank
Banco Central do Brasil (BCB)
SBS Quadra 3, Bloco B, Edifício Sede do Banco Central do Brasil, 20th Floor
70074-900 Brasília, DF
President: Henrique Meirelles
Tel: 55/61/414-3433
Fax: 55/61/226-1989
Email: henrique.meirelles@bcb.gov.br
Web address: http://www.bcb.gov.br

Bank of Brazil
Banco do Brasil (BB)
SBS Quadra 4, Lote 32, Bloco C, Edifício Sede III, 24th Floor
70073-900 Brasília, DF
President: Cássio Casseb Lima
Tel: 55/61/310-3400
Fax: 55/61/310-2502
Web address: http://www.bb.com.br

Secretariat of Internal Revenue Service
Secretaria da Receita Federal
Esplanada dos Ministérios, Ministério da Fazenda, Bloco P, 7th Floor, Sala 733
70048-900 Brasília, DF
Secretary: Jorge Antonio Deher Hachid
Tel: 55/61/412-2707
Fax: 55/61/321-0488
Web address: http://www.receita.fazenda.gov.br

Ministry of Foreign Relations
Ministério das Relaçoes Exteriores (MRE)

Esplanada dos Ministérios, Bloco H, Palácio do Itamaraty
70170-900 Brasília, DF
Minister: Celso Amorim
Tel: 55/61/321-1888
Fax: 55/61/411-6993
Web address: http://www.mre.gov.br
Brazil Trade Net: http://www.braziltradenet.gov.br/

Ministry of Science and Technology
Ministério da Ciência e Tecnologia (MCT)
Esplanada dos Ministérios, Bloco E, 4th floor
70067-900 Brasília, DF
Minister: Roberto Amaral
Tel: 55/61/317-7505
Fax: 55/61/225-7496
Web address: http://www.mct.gov.br

Secretariat of Enterprise Technology Policy
Secretaria de Política Tecnológica Empresarial (SEPTE)
Esplanada dos Ministérios, Bloco E
70067-900 Brasília, DF
Secretary: Francelino Grando
Tel: 55/61/226-0023
Fax: 55/61/225-6039

Sub-secretariat of Informatics Policy
Secretaria de Política de Informática (SEPIN)
Esplanada dos Ministérios, Bloco E, 3rd Floor, Sala 317
70067-900 Brasília, DF
Secretary: Vacant
Deputy Secretary: Roberto Pinto Martins
Email: Roberto@mct.gov.br
Tel: 55/61/225-5440
Fax: 55/61/225-1502
Web address: http://www.mct.gov.br/sepin

National Institute of Metrology, Normalization and Industrial Quality
Instituto Nacional de Metrologia, Normalização e Qualidade Industrial (INMETRO)
Rua Santa Alexandrina 416, Rio Comprido
20261-232 Rio de Janeiro, RJ
Tel: 55/21/563-2816
Fax: 55/21/502-6542
Web address: http://www.inmetro.gov.br

INDUSTRY ASSOCIATIONS

Brazilian Electrical and Electronics Industry Association

Associação Brasileira da Indústria Elétrica e Eletrônica (ABINEE)
Avenida Paulista, 1313, 7th Floor
01311-923 – São Paulo – SP – Brazil
Tel: 55-11-251-1577
Fax: 55-11-3285-0607
Email: abinee@abinee.org.br
Web address: http://www.abinee.org.br

Brazilian Association of Technical Norms
Associação Brasileira de Normas Técnicas (ABNT)
Avenida Paulista 726, 10th Floor, Bela Vista
01310-910 São Paulo, SP
Tel: 55/11/3016-7040
Fax: 55/11/3016-7049
Web address: http://www.abnt.org.br

Federation of Industry of the State of Amazonas
Federação das Induústrias do Estado do Amazonas (FIEAM)
Avenida Joaquim Nabuco, 1919 Centro
69020-031 Manaus – AM – Brazil
Tel: 55-92-234-3930
Email: fieammam@osite.com.br

Federation and Center of Industry of the State of São Paulo
Federação e Centro das Indústrias do Estado de São Paulo (FIESP/CIESP)
Avenida Paulista, 1313
01311-923 São Paulo – SP – Brazil
Tel: 55-11-3549-4499
Email: atendimento@fiesp.org.br
Web address: http://www.fiesp.com.br

Mercosul Normalization Association
Asociación Mercosul de Normalización (AMN)
Avenida Auro Soares de Moura Andrade 664
01156-001 São Paulo, SP
Tel: 55/11/3823-4603
Fax: 55/11/3826-3724
E-mail: secretaria@amn.org.br
Web address: http://amn.org.br

National Association of Automotive Vehicle Manufacturers
Associação Nacional dos Fabricantes de Veículos Automotores (ANFAVEA)
Avenida Indianópolis, 496
São Paulo - SP - Brasil - 04062-900
Tel: 55-11-5051-4044
Fax: 55-11-5051-4044

Web address: http://www.anfavea.com.br

National Association of Electrical and Electronic Products Manufacturers
Associação Nacional de Fabricantes de Produtos Eletroeletrônicos (ELETROS)
Rua Alexandre Dumas, 1901 – 4th Floor - Bloco B
04717- 004 - São Paulo - SP - Brazil
Tel/Fax: 55-11-5181- 8821
Email: eletros@eletros.org.br
Web address: http://www.eletros.org.br

AMERICAN CHAMBERS OF COMMERCE IN BRAZIL

American Chamber of Commerce – Brasilia
SCS Quadra 1, Bloco G, Salas 1206/1207
Edificio Bacarat
70309-900 Brasilia DF – Brazil
Tel: 55-61-321-0939
Fax: 55-61-321-0939
Email: robinluz@amcham.com.br
Web address: http://www.amcham.com.br

American Chamber of Commerce – Campinas
Avenida Selma Parada, 201, Sala 451, Galeria Office Park
13091-901- Campinas SP – Brasil
Tel: 55-19-3207-4343
Fax: 55-19-3207-4440
Email: campinas@amcham.com.br
Web address: http://www.amcham.com.br/english/units/campinas/

American Chamber of Commerce – São Paulo
Rua da Paz, 1431
04713-001 - São Paulo SP – Brazil
Tel: 55-11-5180-3804
Fax: 55-11-5180-3777
Email: business@amcham.com.br
Web address: http://www.amcham.com.br/

U.S. DEPARTMENT OF COMMERCE
INTERNATIONAL TRADE ADMINISTRATION
U.S. COMMERCIAL SERVICE

U.S. Embassy in Brazil
U.S. Commercial Service
Avenida das Nações, 801, Lote 03
70403-900 Brasília - DF Brazil
Tel**:** 55-61-312-7418
Fax: 55-61-312-7656

Email: brasilia.office.box@mail.doc.gov

Contacts:

Daniel Crocker, Commercial Officer
Phone: (55-61) 312-7249
Fax: (55-61) 312-7656
Email: Daniel.Crocker@mail.doc.gov

Avi Bragança, NIST Officer (Standards issues)
Phone: (55-61) 312-7340
Fax: (55-61) 312-7664
Email: Avi.Braganca@mail.doc.gov

Bernhard J. Smid, Commercial Specialist (Computer Services, Computer Hardware, Computer Software, Computer Peripherals, Drugs/Pharmaceuticals, Electronic Commerce, Electronic Components, Electronics Industry Production/Test Equipment, Health Care Services, Laboratory Scientific Instruments, Telecommunications Equipment and Services, Industrial Machinery)
Phone: 55-61-312-7407
Fax: 55-61-312-7656
Email: Bernhard.Smid@mail.doc.gov

U.S. Consulate General Rio de Janeiro
U.S. Commercial Service
Avenida Presidente Wilson, 147
20030-020 - Rio De Janeiro RJ – Brazil
Phone: 55-21-2292-7117
Fax: 55-21-2240-9738
Email: rio.de.janeiro.office.box@mail.doc.gov

U.S. Consulate General São Paulo
U.S. Commercial Service, São Paulo Commercial Center
Rua Estados Unidos, 1812
01427-002 - São Paulo – SP – Brazil
Tel: 55/11/3897-4000
Fax: 55/11/3085-2744
Web address: http://www.focusbrasil.org.br

Contacts:

Paul Kullman, Principal Commercial Officer
Phone: (55-11) 3897-4033
Fax: (55-11) 3085-9626
Email: paul.kullman@mail.doc.gov

Patricia Marega, Commercial Specialist (Computers/Peripherals, Electronic Components, General Consumer Goods, Sporting Goods/Recreational Equipment)
Tel: 55/11/3897-4051
Fax: 55/11/3085-9626
Email: patricia.marega@mail.doc.gov

Ebe Raso, Commercial Specialist (Audio/Visual Equipment, Films/Videos, Telecommunications Equipment and Services)
Phone: 55/11 3897-4040
Fax: 55/11 3063-2622
Email: ebe.raso@mail.doc.gov

Lynn Wong, International Trade Specialist (Computer Software, Computers/Peripherals, Electronics Industry Prod/Test Equipment)
Phone: 55/11/3897-4041
Fax: 55/11/3085-9626
Email: Lynn.Wong@mail.doc.gov

APPENDIX C: ELECTRONICS TRADE EVENTS IN BRAZIL

Amazon-Tech 2003
September 24-27, 2003
Studio 5 Convention Center
Manaus, Brazil
Event Organizers: SUFRAMA and SEBRAE/AM (Brazilian Micro and Small Business Support Service for the State of Amazonas)
Contact: Mr. Jenner Luiz Belem Pinheiro, Consultant
Phone: (5592) 2121-4972
Email: jenner@am.sebrae.com.br
Web Address: www.am.sebrae.com.br/

Amazon-Tech is a biannual event organized by SUFRAMA and SEBRAE-AM. This is the third edition of the trade show, whose main focus is the IT sector. Amazon-Tech showcases the technological development of the Amazon Region, including all of the neighboring countries that contain parts of the Amazon rainforest.

Comdex Sucesu-SP Brazil 2003
August 19-22, 2003
Anhembi Park Convention Center
São Paulo, Brazil
Event Organizer: Key3 Media Group
Contact: Steve Prahalis, Vice President, International
Email: steve.prahalis@key3media.com
Web Address: www.key3media.com/international/

Comdex Sucesu-SP Brazil is the largest information technology event in Latin America and grew by 14% in 2002 over the previous year. In 2002, over 100,000 visitors attended the show, broken down as follows: 51% were IT users, 23% were IT manufacturers, 13% were IT vendors, 7% were IT retailers and 6% were IT service providers. The IT Team of the U.S. Commercial Service in Brazil will staff a U.S. Pavilion near the show's main entrance, helping U.S. IT firms make the most of the event by providing information about the Brazilian market and setting up meetings with local companies. For more information, contact Bernhard Smid at bernhard.smid@mail.doc.gov.

Eletro & Info 2003
November 20-23, 2003
Studio 5 Convention Center
Manaus, Brazil
Event organizer: Amazon Radio and Television Network (Rede Amazônica)
Contact: Mr. Orlando Martins

Tel/Fax: (0xx92) 216 3517
Email: feiras@redeamazonica.com.br
Web address: http://portalamazonia.globo.com/feiras/eletroinfo.htm

In its fifth year, Eletro & Info is an annual event held in Latin America's largest electro-electronics industrial park, the Manaus Free Trade Zone. Showcasing both national and imported products, the fair attracted more than 25,000 visitors in 2002. Industry sectors exhibited include electrical and electronic products, electronic components, computer hardware and software, and broadcast and mobile communications.

Eletron - Southern-Brazil Fair of the Electric-Electronic Industry
August 12-16, 2003
Curitiba Exhibition Center - Barigui Park
Curitiba, Parana, Brazil
Event Organizer: Diretriz Feiras e Eventos Ltda
Phone/fax: 55-41-335.3377
Email: diretriz@diretriz.com.br
Web address: http://www.diretriz.com.br

A biennial regional fair, Eletron showcases the electro-electronic sector of Brazil's South. In 2001 Eletron had 20,000 visitors from 17 states and 10 countries. The event had 150 exhibitors in 2001 and 200 are expected in 2003. Major product lines include batteries and accumulators; electronic components; industrial safety equipment; generation, transmission and distribution of electricity; connectors and insulators; machine tools; electric motors and generators; computer science and robotics; measuring and control instruments; industrial automation systems; alternative energy technology; transformers, converters, and rectifiers.

Electronic Americas 2003
October 6-10, 2003
Anhembi Park Convention Center
São Paulo, Brazil
Web address: http://www.electronic-americas.com.br
Event Organizer: Alcantara Machado
Phone: (5511) 7295-1229
Fax: (5511) 7295-0455
Email: amfp@alcantara.com.br
Web address: http://www.alcantara.com.br

The largest and most important electro-electronics trade show in Latin America, with roughly 600 exhibitors expected in 2003. Electronic Americas 2003 will showcase electronic components, assemblies, electronic production equipment, laser technology, optoelectronics, and instrumentation.